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## ORIGINAL ARTICLES.

### AN ANALYTICAL STUDY OF TWENTY-EIGHT CASES OF ARTHRITIS, WITH SPECIAL REFERENCE TO GOUT AND ITS TREATMENT.<sup>1</sup>

BY CHARLES C. RANSOM, M.D.,

OF NEW YORK;  
VISITING PHYSICIAN TO THE CITY HOSPITAL.

THE prevalence of gout in this country has long been thought to be less than in the British Empire and the European countries in general. But an analytical study of the arthritides, which came under the writer's observation in the second medical service of the City Hospital during the months of November, December and January of this past winter, shows a considerable difference in statistics from those of other observers.

During the period of time just mentioned, 415 patients were admitted to the second medical service. Of these there were twenty-eight cases of arthritis, or six per cent. of the total number; 23 being males and five females. Of the 28 arthritides 12, or 43 per cent., were gout, this being 2.89 per cent. of the total number of cases admitted. Five of these were acute podagra, while the other seven were of the chronic type of the disease. Of the other cases there were five (18 per cent.) of rheumatic arthritis, or 1.2 per cent. of the total admissions, four acute and one chronic; five gonorrhœal arthritis, one septic arthritis, one arthritis deformans and two cases of erythromelalgia.

The first thing that impresses one on reading over the foregoing statistics of these 28 cases is the relatively large incidence of gout. One would naturally ask in the face of this, if the diagnoses made were correct, and if the observations made were unaffected by personal bias—one of the greatest sources of error in work of this character. Let us go over the cases of gout a little more in detail and see if our classification is correct. The acute cases of gout were all classic, beginning in the metatarsophalangeal joints of the great toes with swelling, redness and pain which was worse at night, and with a sharp initial fever; all of these symptoms promptly subsided under the administration of colchicum. With these cases there is, of course, no opportunity for mistake in diagnosis, nor would we expect to find it in the acute forms, but it is in the chronic forms where the clinical history of the onset and development of the affection is typical neither of gout nor rheumatism, that we would look to find errors of classification, if any exist. A review of the seven cases of chronic gout will show, with perhaps two exceptions, that there was no possibility of a mistake in diagnosis.

*Case III.*—Male; patient complained of pain and stiffness in right instep, heel, and ankle. There was no history of injury or strain. The lameness on motion was extreme and incapacitated him for work. A thorough course of salicin had no effect upon the trouble, upon the administration of colchicin the joints promptly improved and the pain, soreness and stiffness disappeared.

*Case VI.*—Male; patient complained of pain, soreness and stiffness in both knees, both ankles and both feet. The knee joints were thickened, stiff, and with very limited motion. The ankle joints were also thickened and stiff. The metatarsophalangeal joints of both great toes were thickened, stiff and somewhat painful on pressure. Patient improved on colchicin and passive movements.

*Case VII.*—Male; patient complained of pain in right knee, both elbows, metacarpal joint of right thumb and metatarsophalangeal joint of great toe. The affected joints were all red, swollen and inflamed. A previous attack one year ago began in the metatarsophalangeal joint of the great toes and came on at night. Patient responded promptly to the administration of colchicin.

*Case XVIII.*—Male; this case had marked deformity of feet, ankles, knees, hands and elbows from gouty tophi, there were also tophi on the ears. There can be no doubt of the diagnosis in this case.

*Case XIX.*—Male; the attack began in the phalangeal joints of the third and fourth fingers of the right hand, and the second and third fingers of the left, then involved the left wrist. The affected fingers of both hands were swollen and stiff, the inflammation having subsided. There was also a node on the flexor tendon of the third finger of the left hand with a beginning Dupuytren's contraction. The patient was kept on salicin for two weeks with no effect, but improved very promptly on colchicin.

*Case XXV.*—Female; patient complained of pain and soreness in metatarsophalangeal joints of both great toes, also in both knees and ankles. The affected joints were swollen, red and tender to touch. There was some crepitation in the knee joints. Attacks would often be precipitated by worry due to domestic trouble. Attack yielded very promptly to colchicin.

*Case XXVII.*—Female; patient complained of pain and stiffness in both knees and in metacarpophalangeal joint of right thumb. The knee-joints were thickened, swollen and painful, as was also the joint of thumb. There was considerable deposit about the thumb joint. Patient was put on salicin for five days with no effect; on colchicin she was up in four days.

<sup>1</sup> Read before the West End Medical Society, April 30, 1904.

Thus it will be seen that there are only two cases in which there could be the slightest possibility of doubt as to the diagnosis of gout. In *Case III* the pain and stiffness in the ankle, heel and instep began a month previous to admission into the hospital, and gradually grew worse without any inflammation or swelling until the patient was incapacitated. The short duration of the trouble, its insidious development without inflammation, and the fact that it did not respond to salicin, but did to colchicin, seems to show that the process was a gouty one rather than rheumatic. In *Case XIX*, the other one in which there might be doubt, the affection began in the phalangeal joints of both hands. At first it was thought that it might be the beginning of arthritis deformans, but as it subsided without the implication of other joints except the wrist, and was controlled by the administration of colchicin, the diagnosis of gout was made. Assuming that these two cases were not gout we still have in the series of 28 cases of arthritis a percentage of 35.7 of gout and 2.4 per cent. of the total admissions to the service, far more than the frequency usually given to that disease in this country.

Of these twelve cases of gout, ten were in men and two in women.

It is a very difficult matter in tabulating a number of cases in this fashion to know in just what manner to separate the acute from the chronic forms, especially when several of the latter have come under observation during and by reason of an acute exacerbation. In the classification of these cases no definite plan has been followed and the division into acute and chronic gout has been made in a purely arbitrary manner.

Quite as surprising as the high percentage of gout cases in the group of 28, is the relatively small number of cases of rheumatic arthritis. Only 18 per cent. of the total number were in this class, or 1.20 per cent. of the total number of patients admitted. Of these five cases four were acute rheumatic arthritis and only one chronic rheumatism. Indeed, this one was placed in the category of chronic rheumatism out of deference to the opinion of those who believe in the comparative frequency of this condition rather than because it was believed to be in any way rheumatic. This was *Case VII*, male, aged seventy years. This might just as well be called senile gout as chronic rheumatism, inasmuch as there had never been an acute attack of arthritis of any kind, but there had been a progressive stiffness and lameness of the muscles and tendons of the phalanges with no changes in the joint structures, all this being concomitant with senile changes in other parts of the body.

*Gonorrhreal Arthritis.*—This class comprises 18 per cent. of the total number of cases of arthritis, an equal number with rheumatic arthritis. This relatively large number is not altogether surprising when one stops to consider the class of patients at the City Hospital, where these cases were seen. Four of them were in males and one in a female.

*Septic Arthritis.*—Only one case, 3.5 per cent. of the total number was in this class. This was *Case XXIV*, female, whose joint trouble dated back some years to an attack of septicemia following a miscarriage.

*Erythromelalgia.*—There were two cases of this rather rare disease, and while strictly speaking not an arthritis, the cases so closely resembled a gouty arthritis they were considered as such on admission and for some time afterward.

*Doubtful Cases.*—Two cases are placed in this category. One of these came in from Bellevue, after the acute attack had subsided. At the time of admission there was a great deal of stiffness and some swelling in both ankles. The patient said the attack had come on ten days previously with great pain, swelling and redness of both ankles and attended with high fever. As the soreness and stiffness increased under administration of salicin but yielded very promptly to colchicin, it was thought there was a reasonable doubt as to its having been rheumatism, so it was classified as doubtful. The second case was one of an intramuscular node in the trapezius, whether of a rheumatic or gouty origin it was impossible to say.

*Arthritis Deformans.*—There was one case of this kind in a female. In the five cases of acute gouty arthritis the attack began in the metatarsophalangeal joints of the great toes in three, the palangeal joints in one, and the ankle in one. The joints to become ultimately affected were the instep, shoulder and chondrosternal joints in this order of frequency.

In the cases of chronic gouty arthritis the initial attacks began in the ankles in four, in the metatarsophalangeal joints of the great toes in one, in the knees in one, and in the phalangeal joints in one. The joints ultimately affected were the knees, metacarpophalangeal joint of thumb, instep, shoulders, elbows and wrists in this order of frequency.

In the four cases of acute rheumatic arthritis, the first manifestations were in the left ankle in two, in the left hand and wrist in one, and in both knees and both elbows simultaneously in one. The joints ultimately affected were the hands, shoulders and feet.

In the cases of gonorrhreal arthritis the ankles were first affected in two, the hand in two, and the left knee in one. In all the cases there was a polyarthritis, and in one all the joints of both extremities were involved, as was also the spine with the production of a very marked kyphosis. In all these cases the arthritis followed closely upon the development of a gonorrhreal urethritis, and in three of the cases there had been a previous arthritis, each one following a gonorrhea. The case with kyphosis had had three previous attacks. In all of these cases several of the joints had been affected at the same time.

In the one case of arthritis deformans the affection had existed for ten years. The first attack beginning in the feet had lasted three months. From that time on for several years there had

been repeated attacks, at intervals varying in duration from a few months to a year. With each succeeding attack more joints would become involved, until all the joints of both extremities became fixed, distorted and painful. The legs were flexed upon the thighs and the elbows fixed at right angles. All movements of the joints were painful, and in many of them there was a marked crepitus on motion.

The two cases of erythromelalgia, while not properly arthridides, are sufficiently interesting to warrant a brief description.

*Case XV.*—Male, aged sixty-five years, butcher. For twenty-five years had pain in metatarsophalangeal joints of both great toes, but more often in the left. Six months previous to attack was seized with vertigo and fell on the floor. The following day was unable to move the right leg. From that time to admission to the hospital was unable to walk (this was early in October). Since admission there was gradual improvement and some locomotion was possible. The feet were stiff and somewhat thickened, especially in the metatarsophalangeal joints of both great toes. The skin was hard, shiny and looked too small for the foot. The color of the skin was a dusky purple-red; both feet were cold to the touch. During the months of December and January a superficial ulceration appeared on the plantar surface of the right great toe. There was also a transitory glycosuria present.

*Case IV.*—Laundry worker; ten months ago first had pain in feet. This would at times extend up the legs. Four weeks ago the pain in the left great toe became more frequent and intense, had to stop work. On admission the great toe of the left foot was swollen, red and painful, pain was much worse at night. While the appearance of the joint was typical of a podagra, the surface was cold to touch. After about three weeks in the hospital an ulcer appeared on the affected toe. There was no glycosuria.

*Treatment.*—The cases of acute gouty arthritis were put upon a milk diet, the joints were painted with what is called "joint special," a mixture composed of oil of gaultheria 1 dram, ichthylol 1 ounce, wrapped in cotton wool over which rubber protective or oil silk was held in place by a roller bandage. Colchicin 1-100 of a grain was given every two hours. If the bowels were affected by the colchicin it was given at longer intervals. As a rule the colchicin could be continued at two hour intervals for forty-eight hours or more. The inflammation and pain were usually controlled within this time, and after all acute symptoms had subsided the drug was continued at intervals of four hours until the patient was discharged.

In the chronic cases of gout the same method was employed if there was inflammation in any of the joints. The joints which were stiff were massaged and given passive movements, and the patients were directed to use the joints as much as possible. This is a most important thing to do, as the tendency of all these patients is to

spare the joints and the liability to permanent stiffness and disability is thereby very much increased. There is no danger of setting up a new attack in a joint if the manipulations are begun after all inflammation has subsided. A very simple apparatus was employed which may be called a "teeter," and it was found to be most useful in limbering up stiffened knees and ankles. The "teeter" consists of a piece of board 21 inches long and eight inches wide. About three inches from the lower end another piece of board about ten inches long is fastened to the first piece at right angles by means of a bracket. Upon the shelf so formed the foot of the affected leg is placed, the longer board being in contact with the posterior aspect of the leg. The patient then sits in a rocking chair and rocks to and fro, thereby producing a greater or less amount of motion in the knee and ankle-joints. Very soon the patient becomes accustomed to the apparatus and can read while taking his exercise. It is an advantage over walking, as it not only keeps the weight of the body off the knees, but compels a much greater angle of motion. There is always a tendency on the part of a patient to fix the muscles so that the movement of the joint on manipulation is much more limited than is caused by the pathological changes in its structure. The use of the "teeter" eliminates this muscular rigidity and the movements of the joints are only limited by the actual structural changes. By persistent use these are to a great degree gradually overcome.

It has often been said that colchicum should never be used in chronic gout, because it would do no good, that by continual use the patient would become accustomed to it, and its effect would be lost in event of an acute exacerbation. Personal experience with it in chronic cases is entirely contrary to that opinion. It has been found to be of the greatest service in clearing up the joint symptoms in these cases, and when an acute exacerbation has supervened, its prompt effect in controlling the paroxysm has in no way been diminished. As an example of what it has accomplished in the writer's hands in chronic gout the following case is cited:

*Case XVIII.*—Male; blacksmith; first came under observation three years ago, having suffered from gout for ten years, the last two years of that period he had been in the City Hospital. During the first six months of his stay in the hospital he had had repeated attacks affecting his feet, ankles, knees and hands, and had been confined to the bed off and on. During the remaining eighteen months he had been practically bed-ridden. At that time he was supposed to have arthritis deformans. At the time of admission to the second division of the hospital there was considerable inflammation of the toes, ankles, knees and hands. Wine of colchicum was administered to the point of tolerance. In the course of ten days the acute soreness had subsided, passive movements were then given. Within a month he was walking about the ward

TABLE OF CASES OF ARTHRITIS.

No. Case.	Sex.	Age.	Occupation.	Diagnosis.	Family History.	Previous History.	Mode of Onset.	Joints First Affected.	Joints Ultimately Affected.	Treatment.	Remarks.
1.	M.	31	Laborer.	Acute rheumatic arthritis.	Negative.	No previous sickness	Two weeks ago both knees and elbows became inflamed; had fever and profuse sweating.	Both elbows and both knees.	Elbows and knees.	Salicin, joint special.	Under salicin patient was able to sit up in three days. Soreness lasted in all eighteen days. No sweating with attack and coming on at night suggests gout.
2.	M.	51	Laborer.	Acute rheumatic arthritis.	Negative.	Arthritis off and on.	Swelling, pain and inflammation in ankles eight weeks ago; came on at night.	Both ankles.	Left ankle.	Joint special.	No effect from salicin; prompt relief from colchicine.
3.	M.	65	Mason.	Chronic gouty arthritis.	Negative.	Malaria forty years ago; had pains in ankles; no redness or swelling.	Occasional pain in big toes and feet, gradually extending up legs.	Both ankles; heel and Right instep, and ankle.	Right instep, heel and ankle.	Salicin for seven days; then colchicine; joint special.	Appearance of both great toes very like acute gout; did not yield to colchicine; later ulcer developed on left great toe.
4.	M.	30	Laundry worker.	Erythromelalgia.	Negative.	No previous illness.		Both great toes.	Both great toes.	Colchicine; dressing aluminum acetate.	Yielded promptly to colchicine.
5.	M.	39	Boatman.	Acute gouty arthritis.	Negative.	Similar attack two years ago.	Began with swelling and pain in phalanx of middle finger; three days later both great toes.	Both great toes.	Both great toes.	Colchicine; joint special.	After using teeter for some weeks, could walk about "deeter" for knees.
6.	M.	55	Laborer.	Chronic gouty arthritis.	Negative.	Malaria twenty-five years ago; arthritis.	Great toes, feet and ankles; and on for ten years has affected knees and other joints.	Both ankles; then big toes.	Toes and knees.	"Deeter" for knees.	
7.	M.	48	Painter.	Acute gouty arthritis.	Negative.	Years ago; arthritis twenty-five years ago; rheumatism.	Began at midnight in ankle; twenty-four hours later in both big toes; joints inflamed swollen and painful.	Both ankles; then big toes.	Both ankles; toes on left foot.	Colchicine; joint special.	All pain left in forty-eight hours; and was discharged from hospital in six days.
8.	M.	45	Iceman.	Chronic gouty arthritis.	Negative.	Father died of rheumatism.	Began in ankles, knees and ankles; and fifteen years ago; later attack began in both big toes; coming on at night, with pain, swelling and inflammation.	Both ankles; both big toes.	Both ankles; both elbows; metacarpophalangeal joint of thumb.	Colchicine; joint special; etched urea.	Gradual improvement in all joints; considerable deposit about thumbs.
9.	M.	33	Stableman.	Gonorrhoeal arthritis.	Negative.	Father had rheumatism.	One week after gonorrhoea had been followed by an attack, each following gonorrhoea.	Knee, ankle, shoulder and neck.	Knee principally; also ankle, shoulder and neck.	Colchicine, salicin; joint special; etched urea.	Colchicine and salicin had no effect; patient well and discharged after four etchings.
10.	M.	27	Waiter.	Gonorrhoeal arthritis.	Negative.	One month after gonorrhoea.	One month after gonorrhoea both knees became red, swollen and painful.	Both knees.	Both knees.	Colchicine, salicin; joint special; etched urea.	Colchicine lessened effect. Soreness lessened after each etching; had three etchings.
11.	M.	45	Laborer.	Chronic gonorrhoeal arthritis.	Negative.	One previous attack.	Moderate beer drinker; had gonorrhoea and pain in hands; last three fingers.	Hands, shoulder, knees and back.	Right wrist, right ankle and knees.	Hot air baths; joint special; ichthyol bath; colchicine.	Practically all the joints; marked hyperphosis.
12.	M.	39	Driver.	Gonorrhoeal arthritis.	Negative.	Heavy drinker; acute rheumatism.	Four weeks after gonorrhoea acute rheumatism; age of twelve withritis.	Right wrist, right ankle and knees.	Right wrist, right ankle and knees.	Joint special; irrigation of urethra with potassium permanganate of potash; passive movements.	Much improved under treatment; a little soreness left.
13.	M.	46	Silk cutter.	Acute gouty arthritis.	Negative.	Father had gout.	Moderate drinker; beer drinker; had gonorrhoea and pain in hands; last three fingers.	Great toe of right foot, three fingers.	Colchicine; joint special.	Prompt relief on administration of colchicine.	
14.	M.	43	Cook.	Intramuscular trapezius.	Negative.	Mother had rheumatism.	Heavy drinker; gonorrhoea three times.	No joints affected.	No joints affected.	Relief from pain and lameness; a short time after massage.	Relief from pain and lameness over trapezius.

TABLE OF CASES OF ARTHRITIS—Continued.

No. Case.	Sex.	Age.	Occupation.	Diagnosis.	Family History.	Previous History.	Mode of Onset.	Joints First Affected.	Joints Ultimately Affected.	Treatment.	Remarks.
15. M.	65	Butcher.	Erythromelalgia.	Negative.	Has had attacks of pain in great toes; had it off and on for twenty-five years; glycosuria.	Pain began in great toes; has been in great toe for twenty-five years.	Great toe; both feet.	Great toe; both feet; ulcer on plantar surface of great toe.	Colchicin; tonics.	Appearance of feet similar to Case IV—No effect from colchicin. Patient has a transitory glycosuria.	
16. M.	40	Tile-layer.	Acute gouty arthritis.	Negative.	Father and mother had rheumatism.	Drinks heavily; and soreness of muscles for stiffness.	Great toe, chondro-sternal joint, sternal joint.	Great toe; chondro-sternal joint; left shoulder, node in left palm.	Colchicin; joint special; Tonic.	Colchicin controlled pain; acted very severely on bowels.	
17. M.	70	Watchmaker.	Chronic gouty arthritis.	Negative.	Rhinewine drinker. First attack began in great toe, right foot, then in chondro-sternal joint.	Great toe right foot; pain, redness and swelling; then in left.	.....	.....	Colchicin; joint special; No especial improvement; general sensitivity.	Always got relief from colchicin; was also improving by ichthyol bath; iodide of potassium would always bring on an attack.	
18. M.	51	Blacksmith.	Chronic gouty arthritis.	No joints; general muscular stiffness.	Rhinewine drinker. Pretty freely; large meat eater; and arthritis for thirteen years.	Great toe right foot, with pain, redness and swelling; then in left.	.....	.....	Colchicin; joint special; Salicin; bath; mas sage.	Salicin had no effect; colchicin every four hours had no effect; colchicin every two hours promptly relieved pain and swelling.	
19. M.	27	Porter.	Chronic gouty arthritis.	Negative.	Moderate drinker; Pain and swelling in fingers; Phalanges.	.....	.....	.....	.....	.....	.....
20. M.	43	Driver.	Acute rheumatic arthritis.	Negative.	Heavy drinker Left hand and wrist became painful, red and swollen at night.	Hand and wrist became painful, red and swollen at night.	.....	.....	.....	.....	.....
21. M.	53	Laborer.	Chronic gouty arthritis.	Negative.	Moderate drinker; arthritis for three years.	.....	.....	.....	.....	.....	.....
22. M.	48	Photographer.	Acute rheumatic arthritis.	Negative.	Similar attack last summer.	Began with pain, redness and swelling in right ankle and foot; extended to left ankle and foot.	.....	.....	.....	.....	.....
23. M.	35	Elevator man.	Acute gouty arthritis.	Negative.	Drinks moderately; has had six or seven attacks in previous two years.	Began with moderate pain in feet and toes, gradually grew worse.	Great toe; and ankles.	Great toe; joints and both feet; top of ear.	Colchicin; joint special; Both ankles; joint special.	.....	.....
24. F.	40	Housewife.	Chronic septic arthritis.	Mother had rheumatism.	Has had several miscarriages; caries; addicted to opium.	Following last miscarriage, pains and ankles became swollen and painful.	Knees.	Knees, hips, and Sacroiliac; lumbar vertebrae.	.....	.....	.....
25. F.	48	Cigar maker.	Chronic gouty arthritis.	Negative.	Drinks heavily; has had arthritis in knees; had attacks of pain in ankles, then to ankles, great toes and hands.	Began with pain and swelling in knees, then to ankles, great toes and hands.	Knees, ankles, great toes, and hands.	Colchicin; joint special.	.....	.....	.....
26. F.	42	Domestic.	Acute gouty arthritis.	Negative.	Moderate drinker; has had several attacks.	.....	.....	.....	.....	.....	.....
27. F.	48	Cook.	Chronic gouty arthritis.	Negative.	Has had for some time profuse vaginal discharge.	Pain, swelling and redness on suddenly in right hand.	Right wrist and hand, following day, right foot became involved.	.....	.....	.....	.....
28. F.	36	Housewife.	Arthritis deformans.	Mother had deformans.	Moderate drinker; has had several attacks.	Knee joints became swollen.	Both knees.	Both knees; metacarpophalangeal joint; joint of thumb.	.....	.....	.....
						Similar attacks at first.	Began with inflammation and pain in feet; then with subsequent attacks all joints became involved.	All joints of both extremities.	.....	.....	.....

with the aid of crutches, and soon dropped the crutches for two canes. By early summer, about four months after he began his colchicum he left the hospital, having discarded his canes, and spent the summer in the country with friends. He was well enough to do light work, and in the autumn came back to the hospital to be cared for during the winter. His condition all winter was good, and there was very little soreness, which was always promptly controlled by increasing the colchicum. He left the hospital again on the advent of warm weather and has remained in very good condition since. Although colchicum has been taken continuously by this patient for over three years, except for short periods, it has never failed during this time to control all soreness and stiffness which might intervene.

The ichthyl bath is another measure which has been found very serviceable in these chronic cases. An ounce of ichthyl is put into a tub of water. The water is fixed at a temperature of 98° to 100° F., and the patient remains in the bath for ten to twelve minutes. The effect of the bath is the immediate relief of stiffness and soreness, which often lasts for forty-eight hours; the succeeding baths give longer periods of relief. It is a good plan to precede the massage and movements of the joints by such baths, as there will then be much more freedom of movement and less soreness on manipulation. In addition to the specific medication iron, arsenic, strychnine and other tonics were given as the occasion called for them. The diet was generous and nourishing, and only limited by the digestive condition of the patient.

*Acute Rheumatic Arthritis.*—These patients were put upon a milk diet, the joints done up in "joint special," as in acute gout, salicin in ten-grain doses was given every hour until the symptoms began to ameliorate, which usually took place within the first twenty-four hours. The salicin was then decreased, but continued until the patient was entirely free from fever and pain. Salicin is preferable to any of the other salicylic preparations, as it does not disturb the stomach or produce any unpleasant symptoms. To get the effect from it, however, it must be given freely.

The practice of putting these inflamed rheumatic joints in splints is much to be condemned. There is always more or less of inflammatory exudate thrown out about the joint in this condition, which becomes organized very quickly if the joint be rendered absolutely immobile by a fixed splint. A stiff joint which may take months to restore to usefulness is very often the sequence of such a procedure. With a soft dressing, such as described above, the joint is capable of slight movement such as would come from changing position in bed, etc., sufficient, however, to prevent the ligaments from becoming glued together, and as the soreness wears off, greater freedom of movement comes. In such cases passive movements can be instituted much earlier and the danger of permanent stiffness be very much lessened. It is exceedingly rare to find a case in which the

pain is so severe with these slight movements as to render complete immobilization of the joint necessary.

In gonorrhreal arthritis neither salicin nor colchicum has the slightest effect on the disease. In fact, so far as is known, there is no drug taken internally which will control the course of the affection. In the five cases in this series irrigation and local application to the urethra were used with very good effect. In two of the cases there were erosions of the urethra which were evidently the source of the affection. These were both etched with a 50 per cent. solution of nitrate of silver. One was cured after four etchings, the other was much relieved after each treatment, but was not entirely well at the end of the period. The one female in this group seemed to improve under bichloride of mercury douches.

For arthritis deformans which has reached the stage of the one case tabulated there is, of course, very little to be done. Good food and tonics are alone to be relied upon. The ichthyl bath will often give comfort, and static electricity does good in various ways.

Mention was made above of one doubtful case which might be either gout or rheumatism, where an intramuscular node in the trapezius was present. Such cases are not so very rare. Here there were present pain and stiffness of the muscle which were very much aggravated by movement. On examination the nodes were felt down deep in the muscle. The treatment consisted of massage and the administration of colchicin, under which the nodes in a very short time disappeared.

66 West Forty-ninth Street.

#### CONTRIBUTIONS TO THE PATHOLOGY AND TREATMENT OF ACUTE GONORRHEA.

BY LUDWIG WEISS, M.D.,

OF NEW YORK;  
PHYSICIAN TO THE GERMAN POLIKLINIC, SKIN AND GENITO-URINARY DEPARTMENT; CONSULTING DERMATOLOGIST, HEBREW ORPHAN ASYLUM NEW YORK.

In all probability fully 90 per cent. of all urethral discharges are due to the gonococcus; the rest are caused either by pyogenic bacteria and the numerous unclassified microbial flora of the urethra or are due to chemical or traumatic conditions causing a catarrhal urethritis. These various conditions may be conveniently formulated under the following headings:

1. *Invasion of gonococci plus reactive emigration of leucocytes, pus serum and epithelial and eventually deeper structural lesions, i.e., gonorrhea, a specific and infectious urethritis.* Microscopically, we find mainly intracellular, intercellular and some extracellular gonococci, leucocytes, and epithelia; clinically, more or less inflammatory symptoms, usually copious discharge; complications and systemic metastases frequent.

2. *Bacillary, but non-gonorrhoeic urethritis.*—As a primary infection this form is very rare, and may be due to chemical or sexual influences; if present, however, it is of a quite chronic char-

acter, and often refractory to treatment. Casper<sup>1</sup> and Waelsch<sup>2</sup> have seen complications occurring with this form (prostratis). As a so-called secondary infection following gonorrhea, however, this form is very frequent and merits great attention. The healthy urethra is the habitat of a numerous innocuous microbial flora. While non-pathogenic for a healthy urethra, which they inhabit with impunity, these micro-organisms, when reinforced by the bacteria of pus or by *bacillus coli commune* may assume irritating properties in a urethra debilitated by the gonococcus or its toxins. The contributory causes for this kind of urethritis are: the ubiquitous pus bacteria, unclean instrumentation, chronic constipation, phosphaturia and oxaluria, the contamination with leucorrhæal discharges, overtreatment, etc. Microscopical examination reveals micro-, staphylo-, and strepto-cocci, various diplococci, epithelia, leucocytes, mucus, Boettcher's crystals from the prostate or spermatozoa.

3. *Catarrhal urethritis, either simple primary or secondary aseptic urethritis, no pathogenic microbes.* The primary form is extremely rare. The secondary is due to a prolonged catarrhal condition of the mucosa, and occurs mostly as a terminal postgonorrhæal discharge. Contributory causes: Sexual overindulgence, masturbation, sometimes even aseptic instrumentation, overtreatment, chronic prostatitis, bicycling, horse-back riding, irritating drugs, urethral chancre, herpes, and a slightly mucopurulent discharge of recent syphilis caused by maculopapular lesions in the urethra. Microscopically, we find in this form mucus and epithelia imbedded in a network of fibrin; occasionally an accidental admixture of microbes as nosoparasites.

I will here consider gonorrhea only, due to the invasion of the gonococcus discovered by Neisser in 1879. It took some little time before this fact was accepted by the sceptical minds of medical men. Long before this gonorrhea had been attributed to a fungus called *Trichomonas vaginalis* by Donne,<sup>3</sup> to an alga called *genitalia* by Jusseaume,<sup>4</sup> to another fungus called *Coniothecicum gonorrhœicum* by Hallier, and to spores called *Crypta gonorrhœica* by Salisbury.<sup>5</sup> It is only in historical justice to Salisbury that I here venture to credit him, for the first time, to my knowledge, with believing that he had really seen gonococci. He describes his spores as occurring in pairs and sometimes in fours, "undergoing the process of duplicative segmentation," developing rapidly in and among the parent cells of the urethral mucous membrane. "In some instances the pus cells become filled with the spores." He goes on further by stating—and here fate and lack of staining technic and of our high grade microscopes make him unwittingly deviate from a truth which it seems was within his grasp—that "the spores unite into filaments." In Eulenburg's "Real Encyclopedia," in the article "Gonorrhea," Gruenfeld, of endoscopic fame, in 1885, remarks incidentally that Neisser has found a

micro-organism allegedly peculiar to gonorrhea, these being the only words attributed to a great discovery, already over six years old.

All this time, and well up in the 70's of the last century, the different urethral discharges were promiscuously called gonorrhea. The so-called strumous, herpetic, gouty, rheumatic, scrotal habit was held, to produce urethral discharges in conformity with ancient traditions not entirely eradicated in our times. We know that these constitutional anomalies do not cause urethral discharge, as was thought, but that they may prolong in such persons the duration of chronic gonorrhæal discharge. Besides these diatheses there are innumerable causes for gonorrhea. Milton compiles 37, among which are hemorrhoids, dentition, ascarides, suppression of skin diseases, etc. There are some ludicrous causes of gonorrhea, like, urinating in the night air, against the north wind, the exertion of lopping a tree, a strain, cold from the closet, etc. *Omnis gonorrhœicus est mendax!*

But the main cause for discord was to decide the question whether leucorrhæa, a catarrhal, non-specific inflammation of the vagina or uterus, could cause gonorrhea in man. Ricord<sup>6</sup> declared that gonorrhea is neither specific nor contagious, that it is due to different causes and may also be generated by leucorrhæa. Diday, his genial pupil, asserts that any woman with a discharge may give gonorrhea. That all hapless husbands of such leucorrhæal women did not acquire gonorrhea is due only to the most providential circumstance, that they are becoming acclimatized, so to say, to the special conditions of their wives. Gonorrhea may be given, says Linas,<sup>7</sup> by the most chaste of wives, while Fournier (Milton, *loc. cit.*) gives the ante to Ricord by maintaining that more frequently than otherwise a woman who gives gonorrhea may not have it herself. Bumstead<sup>8</sup> says that he has reason to believe that frequent repetition of the sexual act has produced gonorrhea in women free from any previous disease. These believers in the non-specific nature of gonorrhea are, however, grossly inconsistent in their reasoning when they maintain that if in a female the signs of infection are in the urethra, then specific gonorrhea is present, while when other parts of the genitalia are affected it is not gonorrhea. Even recently an authority like Lydston<sup>9</sup> holds that all inflammatory affections from the urogenital membrane are likely to be infectious, in spite of the absence of gonococci; it may develop *de novo* in the female sexual tract. The discovery of the gonococcus, he thinks to be only of relative clinical value.

As to the assertions of the first-named authors, I think the issues have been hopelessly confused. Microscopical and cultural experiments had not then revealed what is common property now, that is, the specific coccus, and its peculiarities and its inveteracy were unknown. As to the remarks of the last-named writer, they are entitled to the greatest consideration, coming from such an unimpeachable source. That gonorrhea must have

begun spontaneously somewhere and somehow cannot be disputed, and it possibly may again originate in the same way. But this reasoning may apply equally to diphtheria or typhoid; yet we do not maintain that any of these diseases originated *de novo*, but attribute their propagation from individual to individual. I am of the conviction that leucorrhea, simple or purulent, which does not contain gonococci cannot cause gonorrhea in the male; neither will intercourse with women so afflicted, either during or directly after the menstrual period, produce it. It may, however, cause a purulent, non-gonorrhoeic bacillary discharge of short duration and little irritation. I have never seen in such cases complications of the adnexa to occur. Where such complications have taken place it was due to latent gonorrhea, where under the stimulus of excitement reinfection occurred by dormant gonococci, which again became active.

In 1879 Neisser discovered the long-suspected parasite in the form of a peculiar diplococcus in urethral gonorrhea and ophthalmia neonatorum, calling it the "gonococcus."<sup>10</sup> It is readily distinguished by its coffee-bean form, dimensions, grouping in clusters of multiple fours, intracellular situation, and especially by its being readily decolorized by Gram's method, and by its somewhat difficult cultivation. The etiological importance of the gonococcus was undoubtedly established through the positive inoculations of Bumm<sup>11</sup> and of Wertheim,<sup>12</sup> which proved that a pure culture of the gonococcus implanted in a healthy urethra of man reproduced the disease clinically, microscopically and culturally, putting the specificity of the gonococcus as the cause of gonorrhea beyond a doubt. Soon a host of authors, especially Finger,<sup>13</sup> Steinschneider and Schaeffer,<sup>14</sup> and others, confirmed these results, while other investigators, like Young,<sup>15</sup> and of late Thalmann<sup>16</sup> facilitated the successful cultivation of the gonococcus so as to be almost within reach of any practitioner with some bacteriological knowledge.

Pure cultures of the gonococcus have been experimentally inoculated by many others since in several localities. Ahman<sup>17</sup> reports a case where a pure culture obtained on blood serum from a patient with gonorrhreal arthritis was injected into the urethra of a man. In a few days a gonorrhreal discharge developed and in turn a synovitis, which showed gonococci present in pure culture. Finger and Bockart<sup>18</sup> in 1883 made urethral inoculations with successful results. Hansteen<sup>19</sup> obtained pure culture of gonococci from operated cases of inguinal adenitis, inoculating it in the urethra of a healthy man and causing real gonorrhea. Successful cultivations from cases of arthritis, subcutaneous abscess, acute and chronic cystitis, pyonephrosis and peritonitis were obtained by Young<sup>20</sup> and others. Lang and Paltau<sup>21</sup> report such abscesses on the dorsum of the hand. In a patient with gonorrhea referred to me by Dr. M. Goldberg, of this city, I have seen a severe exudative inflammation of the right wrist. Examination revealed gonococci. Simi-

lar cases are reported by Horwitz,<sup>22</sup> Bujivid,<sup>23</sup> and Jundell.<sup>24</sup> I have seen a case of painful swelling of the costosternal cartilage in a patient aged forty years, who had gonorrhea.

To mention just a few other instances of systemic gonorrhea I will quote a case of gangrene of the foot and leg by embolism of the femoral artery through ulcerous endocarditis caused by gonorrhea,<sup>25</sup> rupture of the aortic valve in consequence of a verrucous mass containing gonococci.<sup>26</sup> Also a similar case by Keller,<sup>27</sup> but situated on the valves of the pulmonary artery following gonorrhea. Alfred Stengel,<sup>28</sup> also Bales and Siaen,<sup>29</sup> J. Adler,<sup>30</sup> and others, report cases of fatal blennorrhagic endocarditis and pyosepticemia. Wertheim<sup>31</sup> reports a case of gonorrhreal cystitis with thrombophlebitis of the bladder. While even Finger, Bumm, Sänger and Guyon, regard the latter complication as caused by a mixed infection, it was shown by Melchior,<sup>32</sup> Wertheim, Lindholm<sup>33</sup> and others that gonococci alone were found in the mucosa of the bladder, in the venous capillaries, and in the urine of these patients. Colombini<sup>34</sup> and others found albuminuria due to general blemorrhagic infection. Roswell Park<sup>35</sup> reported several cases of gonorrhreal pyemia. Salpingitis as a contiguous infection occurs in from 23 to 70 per cent of all gonorrhées in women.

We are most conversant with the painful afflictions of the joints, well-known as gonorrhreal rheumatism, of inflammations of the synovia of the joint, and of the sheaths of the tendons, as tendosynovitis. These latter processes have been recently observed even in children. Smith<sup>36</sup> found an infant, fourteen days old, with ophthalmia neonatorum afflicted with gonitis dextra. Griffith<sup>37</sup> observed iritis to be a more frequent complication of gonorrhea than of syphilis. Ackers<sup>38</sup> reports a case of multiple arthritis in a girl, two years old, afflicted with gonorrhreal vulvovaginitis. Lazarus,<sup>39</sup> in quoting Engel-Reimers' case of paralysis of the larynx, describes a case of posticus paralysis necessitating tracheotomy in a patient with gonorrhoeic arthritis.

The influence of the gonococci upon the nervous system has been already observed by Charcot<sup>40</sup> in 1887, Leyden<sup>41</sup> 1892 as gonorrhoeic polyneuritis especially of the lower extremities. Sellenew<sup>42</sup> coincides with Christnas<sup>43</sup> that the gonococci and the gonotoxins form a most energetic poison for the nervous system. They may cause alterations in the sensitive, vasomotor, secretory, trophic, and motor nerves, and also of the skin and tendon reflexes. Orlipski<sup>44</sup> describes gonorrhreal neuroses; Kienbock<sup>45</sup> and Ware<sup>46</sup> report blennorrhoeic neuritis and myositis; Glyn<sup>47</sup> and Kankarovitsch,<sup>48</sup> besides multiple neuritis, describe paralysis as a complication of gonorrhea, and Welander<sup>49</sup> observed a fatal case of polyneuritis due to gonorrhea.

The osseous system has been also reported as affected by Philippet,<sup>50</sup> who mentions gonorrhreal osteitis and periostitis, especially of the small bones of the hand and foot, and Kieubock,<sup>51</sup> who demonstrated by radiography atrophy of the

wrist, elbow and hip joints. I have observed in a physician arthritis of the fibrous parts of the vertebral column, with excessive pains and stiffness as a post-gonorrhoeic affection.

Finally skin affections, like erythema nodosum, hyperkeratosis and urticaria<sup>52</sup> have been observed as sequelæ of the ubiquitousness of the gonococcus or its toxins, and pyemia, iritis, pleuritis, etc., acute general peritonitis<sup>53</sup> by Wertheim,<sup>54</sup> Walton,<sup>55</sup> Cushing,<sup>56</sup> and others; all these manifestations showing general systemic infection by extensions and generalizations of the gonorrhoeic process. A veritable mine of information on systemic (metastatic) gonorrhœa can be found in the work of Schneider,<sup>57</sup> and v. Hoffman,<sup>58</sup> which contain a compilation of all published cases since 1880. Sturgis<sup>59</sup> also deals ably with this question.

But well known as these facts are, it has puzzled us not to find the gonococcus in some of these metastases, although they were in casual connection with the gonorrhœal process. Wassermann<sup>60</sup> and Scholtz<sup>61</sup> have shown that gonococci produce toxins, that is, products of their metabolism. It may be inferred that these toxins are the cause of such metastatic processes, where painstaking cover glass and culture examinations do not reveal the presence of gonococci. The toxins in such a case might have been set free by the dissolution of the germs, but in most cases the presence of the gonococci was demonstrated.

#### PECULIARITIES OF THE GONOCOCCI.

These local and general manifestations of gonorrhœa have their analogue in other microbial infectious diseases. We have all seen cases of diphtheria, or of streptococcus infection or lacunar mixed infection of the tonsils remain local, causing no systemic disturbance, while in some instances the most foudroyant general infection takes place. We try to explain this by the assumption that in these cases the Klebs-Löffler bacillus or the streptococcus did not generate toxins or that its toxins were neutralized in one instance and not so in the other. Even as to the dreaded persistency of the gonococcus we find similar conditions in other microbial diseases. I have seen the bacillus of diphtheria demonstrated by cultivation from the tonsils of patients who had the disease five months before. We know that the bacillus of Eberth, the typhoid bacillus, has been found in the urine and spleen six months after infection. They, as well as the gonococcus, after such protracted reproduction upon the same soil, lose their virulence almost to the point of innocuousness, but they become virulent again when transported to a new soil. But it is questionable as yet whether in those cases a reinfection can take place in the same individual, as is the case with the gonococcus under the influence of an irritating cause.

Here it seems the analogy ends; probably because gonococcus life has been studied more closely. We know that the gonococcus may lie dormant in Littre's glands, or in the secure depths of Morgagni's crypts, in Cowper's, in the ducts

of the prostatic glands, or in the remote abodes of the seminal vesicles. The "morning drop" of the patient may not show the presence of any gonococci, the scrapings of the urethral mucosa, the careful and trying examination of the threads in the urine may all prove negative, and yet there may be gonococci hidden in the contiguous tissues and glands. There they lie, seemingly innocuous in their latency, until a sudden mechanical impulse sets them free. Excesses in *Baccho et venere* and irritations of the genitalia of a kind to cause often-repeated hyperemia; overindulgence, better known as the much complained-of "strain"; chronic prostatitis, perchance even constipation, all these may cause, in a mechanical way, an expression of gonococci and a new invasion of the urethral mucosa by them.

The reported cases of acute diffuse gonococcus peritonitis (*loc. cit.*) developing during menstruation and following a recent exposure to infection, will recall to the mind of the practitioner such cases of peritonitis in the puerperal state where, in spite of the most minute asepsis and an uneventful delivery, septic peritonitis has set in. Likewise cases of parametritis and perimetritis will be remembered that have started with the onset of menstruation and have been attributed to taking cold, to a strain, and to other such unproven incidents. There has always been, and there is yet, a suspicion in critical minds concerning the origin of these exudative pelvic inflammations. In the light of the ubiquitousness of the gonococcus, and the obscure and circuitous ways of its acquisition, it is perhaps not too hazardous to maintain that a goodly part of ascending pelvic inflammations, unrecognized as to their etiology, are due to gonococcal infection, either by the coccus itself, or by its toxins. The puerperal and menstrual states, with their attendant congestive conditions, might create an especially receptive medium for the propagation and invasion of dormant, or, as the case may be, of a recent and active brood of gonococci.

Furthermore, the life history of the gonococcus is of such a retributive character that it stops short of nothing. A man affected with chronic gonorrhœa of a form so slight that he may be unconscious of its presence, may become refractory to his own gonococci. But transplanted to a new soil they will become virulent in the vaginal mucosa of their new host. By this implantation on a new culture medium, the gonococci may again assume a degree of virulence which, in turn, is capable of infecting the man who bore the ancestors of such gonococci with immunity. By some as yet unknown biological transformation they become alien to the soil they have before inhabited with impunity to its bearer. It is evident, therefore, that a woman with an exudative parametritis or perimetritis, acquired from latent gonorrhœa of a man, may be able, after sexual relations have been resumed, to infect that man with just as virulent a type of gonorrhœa as if acquired by any impure illegitimate life. The physician who is well acquainted with all these

possibilities of gonococcus life, will be able to explain and to redeem a seemingly lost reputation.

#### STERILITY.

The main cause of sterility in both sexes we know to be gonorrhea. While syphilis provokes miscarriage it does not hinder propagation in the male and conception in the female. A reasonably energetic and well-conducted antisiphilitic treatment will, as we know, attenuate the virus, or even annihilate it, so as to make both factors capable of procreation; else would it be a questionable blessing to propagate inferior individuals. Syphilis, although tainting it, does not destroy the vitality of the semen, but impairs gestation by weakening the retaining power of the womb. This is a wise defensive step of Nature to eliminate those which would otherwise be born with misery to themselves and others. Gonorrhea, however, destroys not only fecundation through azoospermia and nekrospermia in man (indurative epididymitis) but gives through the persistency of the gonococcus in the prostate and seminal vesicles an infectious character to the otherwise healthy semen. Latent gonorrhea with dormant gonococci in the prostate, seminal vesicles, Cowper's glands, or in the deeper glandular structures of the urethra, also strictures, indurative urethritis, cavernitis and resulting malformations; in the female endometritis, metritis, salpingitis, ovaritis, as pointed out by Bernultz<sup>63</sup> in 1857, and most emphatically by Noeggerath in 1872,<sup>64</sup> will add their destructive mites to the impaired virility in men and conception in women.

Gonorrhea, therefore, which is acquired by probably 80 per cent. of men is to be looked upon as a disease of the masses and as the main cause of depopulation; depopulation resulting through a decreased birthrate and the morbidity in women so affected who are either maimed by necessary surgical interference or succumb to the later manifestations of gonorrhea. Neisser's assertion that it is more frequent than measles is a comparison lucidly conveying to the mind its frequency at a glance. Gonorrhea does not only affect the working and earning capacity, but also the health of the people. Eighty per cent. of all deaths from pelvic disease in women are due to gonorrhea. Twenty per cent. of all blindness is due to gonorrhreal infection of the newborn. Fifty per cent. of all involuntary childless marriages are caused by gonorrhea of the female organs of generation, of which 45 per cent. are due to marital infection by men. Race suicide, therefore, after all, is less a question of marital precaution than of matrimonial incapability.

This cursory allusion to the social danger of gonorrhea is sufficient cause for advising individual prophylaxis that has proved both promising and feasible.

*General Prophylaxis.*—To combat an affection so widespread as gonorrhea, which merits the attribute of a pandemic, exercising its deleterious consequences for ages, although the knowledge of their real importance is of comparatively re-

cent date, must have stimulated mankind to preventive measures. It lies not in the scope of this paper to deal with the moral aspect of the question; the writer has done so extensively in an article read before the Fifty-third Annual Meeting of the American Medical Association, at Saratoga, in 1892<sup>64</sup> to which I beg to refer the reader. I would only briefly remark here that it is not for the sake of the profligate that we recommend prophylactic measures, but to save the innocents who are threatened with a tedious, devitalizing, and destructive disease, tainting the yet unborn, and maiming and invalidating those living. It is evident that continental measures against prostitution have proved futile wherever tried; they sterilize only a small number of foci and invariably augment clandestine prostitution. While in this country, besides sentimental reasons, constitutional rights, moral considerations, etc., are inimical to the adoption of such means. I declare most emphatically, however, that the State cannot with impunity fail to take cognizance of the plague, and that between the unwholesome conflict of sanitary and moral interests I have found that morality is in no way increasing by relegating the sanitary aspect of the question to the background. Some State legislation, not necessarily regulation, is needed. Moralists and sanitarians must make mutual concessions on a common platform. Until such combined efforts will meet their realization, we must, under the present conditions of moral evolution of the race, take hold of the nearest measure available, and this is *special individual prophylaxis*. People ought to be enlightened on sexual hygiene and the innocuousness of continence. The dangers of gonorrhea—too frequently underestimated, or even frowned upon as yet—and the manifold ways of communicating it, should be explained to them.

Among venereal diseases gonorrhea is the only one in which the causative factor, the gonococcus, is known; consequently agents for the destruction of the pathogenic germ *before* incubation has set in, have been devised with success. It consists (analogue to the Credé instillation in ophthalmoblännorrhea) of the instillation, immediately or shortly after exposure of a two per cent. solution of silver nitrate or of the more recent silver preparations. Prophylactic measures which prostitutes are compelled to use under Continental regulation are under the reigning circumstances here out of the question.

The *treatment* of gonorrhea may be summarized as follows: (1) Treatment by prophylaxis; (2) the abortive treatment; (3) the expectant treatment without remedies; (4) treatment with remedial agents combined; antiphlogosis; (5) active etiological treatment followed by treatment of lesions.

1. The *treatment by prophylaxis* is coincident with the prophylactic measures mentioned before.

2. *The Abortive Treatment.*—In ancient, in medieval, and in the present times, and before the

microbial conception of gonorrhea, innumerable attempts to eradicate the process in its incipiency were made. But the abortive treatment was elevated to the dignity of a method through Ricord<sup>66</sup> and his followers (Diday, etc.) in 1851. It consisted of the injection into the urethra of a strong solution of nitrate of silver, 10 to 15 grains to the ounce, after urinating. The result was gratifying only in a minority of cases. In the others phlegmonous inflammations, suppression of urine, suppurative prostatitis, and other serious complications supervened. Welander,<sup>67</sup> in gonorrhea of not more than three days' standing, destroyed the epithelium of the meatus and fossa navicularis until capillary oozing ensued, and then injected a 2 per cent. solution of nitrate of silver for two minutes, following it with injections of salt water. Hugues<sup>68</sup> used the same procedure, injecting bichloride in the strength of 1 : 1,000. Koester and Jadassohn, 1892,<sup>69</sup> recommended ichthylol, and Janet<sup>70</sup> in 1892 published his abortive method of large flushings with strong solutions of permanganate of potassium 1 : 2,000 to 1,000, which he soon changed (1894) into his well-known modified abortive treatment by irrigations of the same drug in the strength of from 1 : 4,000 to 1,000. Neisser, after the gonocidal power of silver nitrate had been established at his clinic by Friedheim in 1892, injects a solution of it in the strength of 1 : 3,000 to 1,000. Feleki<sup>71</sup> cauterized the urethra with a solution of nitrate of silver 1 to 20 through the endoscope. He effected a cure in all his twelve cases in from four to twenty-one days; a rather too optimistic result when we consider that five of his cases were first infections and several had several infections. Kopp<sup>72</sup> reports 25 per cent. of cures in cases that presented themselves fourteen hours after exposure. In most of these cases a profuse, bloody, purulent discharge took place, with violent pains and inflammatory symptoms. Statistics to this effect, although given by honest conviction, are not always reliable.

With the introduction of the new silver salts as eminently gonocidal and non-irritating remedies, the abortive treatment of gonorrhea has assumed a new aspect. If by the use of these remedies we should happen to fail in our attempt we have at least not done any harm, as was the case, I believe, with nitrate of silver. Welander,<sup>73</sup> in 1898, and afterward Ahlstrom, in 1900, were the first to use these preparations as an abortivum, employing protargol in a 3 to 4 per cent. solution, thrice daily, for three days, with about 50 and 83 per cent. respectively of positive results. They maintain that if used within a few hours after infection it will act as a positive abortivum. Blaschko,<sup>74</sup> in 1902, is also a zealous adherer of the abortive cure of gonorrhea. He has given up a 2 per cent. solution of nitrate of silver for this purpose, and uses instead injections for three days of a 1 to 2 per cent. solution of alargin, or a 4 per cent. protargol solution, retained three to five minutes. He reports absolute absence of all irritation, and a positive result in 50 per cent. of the cases. He

considers the ease of application as a great advantage over the Janet method. Frank is of the same opinion. Bierhoff,<sup>75</sup> in a paper read before the German Medical Society, December 7, 1903, reports a series of thirty cases treated abortively by injections of protargol. He used it in cases where the second portion of urine was clear, showing no posterior involvement. In fifteen cases of first attacks he had negative results, while in the other fifteen, who had two or more attacks, the results were positive. In the first series of cases, however, the patients did not present themselves earlier than the sixth day after infection. Other writers, like Christian,<sup>76</sup> maintain that gonorrhea cannot be aborted.

To me it is not so much the question of the remedy used as the question of principle which needs to be decided, Can we abort gonorrhea? Between the unfruitful conflict of the pros and cons, the weight of evidence is in favor of the former. There certainly must be a time-space—it varies from eighteen hours to three days—within which the gonococci, despite their quick penetration, are superficial and capable of being killed. Granting this, their early destruction is a possible proposition. But the prodromata of gonorrhea are, unfortunately, of such latent, hardly perceptible nature that only the hypochondriac self-observer, or one especially interested in the hygiene of sexual life—rara ayes—will apply the remedies in the period of incubation. Therefore, I would call aborted only such cases which are so treated within thirty-six hours after infection as the utmost average limit. I would recommend such a procedure when the microscope shows abundant gonococci on epithelial cells and only very few leucocytes. Cases that are successfully cured forty-eight hours or more after infection I look upon as having yielded to immediate early treatment, or prophylaxis by treatment in the ordinary sense of the word.

3. *Expectant Treatment Without Remedies.*—It has been maintained by those favoring conservatism that gonorrhea is a systematic infectious disease with rise of temperature, increase of leucocytes, enlargement of the lymphatic glands and spleen, and having its stage of incubation, flourishing and defervescence. The theory propounded by Sternberg, in 1881, and elaborated by Metchnikoff, in 1884, of phagocytic action of leucocytes, to engulf and destroy micro-organisms, has been generally accepted. But it seems to me too phantastic to deduce from it the absolute nihilism as to treatment by further maintaining that the infective agent must not be destroyed, as it generates substances—antitoxins—or so-called defensive proteids, which must be looked upon as Nature's remedial agents. We have reason to believe that gonorrhea will heal spontaneously. But in treating, for instance, a case of typhoid or pneumonia on the expectant plan, we do not indulge in absolute nihilism either. The patient is in bed; his hygiene and dietetics are looked after. Our social conditions will permit only a very limited number of gonorrhoeics to take to their bed. The ex-

gencies and exertions of business life will frustrate a spontaneous cure. With their unchecked discharge they are menace to others and to themselves. It is therefore obvious that, as in the present state of our knowledge, we cannot depend solely upon the curative action of Nature's endeavors; if judicious antiparasitic treatment is instituted to support these, the chances of recovery and the avoidance of complications are in favor of the patient.

4. *The Expectant Treatment with Remedial Agents (Balsamics) Combined.*—I have certainly seen patients who had refused other kind of treatment get well under the sole use of balsamics, of course, so far as stopping of the discharge and the discontinuing of attendance may be taken as a sign of a cure. It is held by some that the balsamics should not be administered in the acute stage, as they stimulate the urethral mucosa at a time when all irritation should be avoided. This point is not well taken. May I ask of those who irrigate in the most acute stages, whether the pressure irrigation of the urethra from outward within is less irritating than a flushing of the urethra with urine impregnated with the infinitely less irritating products of the balsamics, through the natural channels from within outward. Finger administers the balsamics in those cases where acute symptoms supervene and injections would only increase the distress and also in the usual run of cases when injections are at once applied, thus combining both agents. On the contrary, Taylor<sup>76</sup> and Pedersen<sup>77</sup> employ the balsamics only when the inflammation begins to decline. Most German writers use them from the beginning.

Considering the pathology of gonorrhea that the discharge is the repelling act of the organism to flush out the gonococci, and considering that the balsamics tend to stop the discharge at a time when increased leucocytosis is essential, I do not for this reason recommend the exhibition of the balsamics before the acme of inflammation has declined. I also, however, regard them as an adjuvant of great value beyond this stage.

As to their mode of action, theories differ. The experiments of Ricord and of later writers tend to show that the urine impregnated with the disintegrated or liberated products of copaiba balsam or santal oil—most probably resinous acid and ethereal oil—and united according to Weikart with the alkalies of the circulation as sodium copaibate or sodium santalate, acts as a local detergent to the urethral mucosa, making it (laboratory experiments to the contrary) a less productive culture medium. Among the long list of balsamics, santal oil is justly the most employed by virtue of its lack of disagreeable properties and positive effectiveness. It sometimes produces congestion and pain in the kidneys, and should then be stopped at once. It is best given in capsules containing 10 drops, three times a day.

As to the antiphlogistic treatment the antiquated way of leeching, etc., has only an historical

interest; but even in our pro modern times a certain amount of rest, cold applications, spare diet, regular evacuation, and the copious drinking of water, demulcents, and alkalies or an infusion of *folia uva ursi*, are very recommendable, but by no means obsolete adjuncts. I have found prunes a pleasant means of rendering the urine alkaline.

5. *Active Etiological Treatment, Followed by Treatment of Lesions.*—This can be done, first, by the Janet method of copious irrigations with permanganate of potash, and second, by injections of the new silver salts by hand syringe. What is called the modern treatment of gonorrhea, a term so often used of late, comprises the endeavor to treat gonorrhea according to its etiology. The excitant factor being the gonococcus of Neisser, its removal and eradication should form the main and primary object of our action. If the etiological treatment of acute gonorrhea with the silver proteid preparations would be instituted as speedily as possible it would diminish complications of the glands and lacunae of the anterior urethra, acute and subacute posterior urethritis, cowperitis and prostatitis, and incidentally chronic urethritis and prostatitis. While acute posterior urethritis, which is regarded as the most usual complication, will develop in 70 to 80 per cent. of cases treated in the beginning with astringents, we will find it when employing the new silver salts only in 30 per cent., and according to some statistics in only 10 per cent. of cases.

(To be Continued.)

#### RECENT ADVANCES IN THE THERAPEUTICS OF PEDIATRICS.

BY NOBLE P. BARNES, M.D.,  
OF WASHINGTON, D. C.

THE most eloquent argument that can be advanced in proof of the worthiness of this branch of the art, is the remarkable reduction in infant mortality in all civilization. Our large cities<sup>1</sup> point with satisfaction to the decline in the death rate of children in the last ten years, and further improvement may be confidently expected with a more thorough application of recognized knowledge.

In this contest of human existence, much depends upon getting a good start, and some of these infants that are being saved have a hard struggle shaking off the iniquities of their fathers. It is an established fact that the children of young parents are stronger and of better health than those of parents who marry late in life. It is to be expected that the child of a gouty, nervous club-man and a broken-down society belle will inherit the tissue proclivities and endowments incident to a life of more or less dissipation.

Several conditions are eminent: (1) belated marriages result in diminished birth rate; (2) the increase of cancer is only among the nations in which the marriage age has been steadily advancing; and (3) the psychosis noticeable in a large percentage of children depends, not so much

upon school life, as upon inheritance and the nutritive process of the developmental period.

The medical inspection of schools has only begun to accomplish what is within its possibilities, and the future school will have its medical attendant who will not only exclude children suffering with contagious diseases and those who have other diseases rendering them too ill to remain in school, but will direct those mentally and physically defective and determine the amount of school work a child is able to perform.

Most college teachers recognize the fact that when normal students eat, sleep and exercise wisely there is little danger from over-work, and their college stay is attended with health improvement. It should be more generally known that every scholar is not intended by nature to be a professional man. Many a good proletarian has been led astray by being encouraged to believe that "any one with a sufficient stock of impudence may reasonably well pass for a physician."

Experimental and clinical observations have served to emphasize many well-known facts respecting infant feeding. The danger from raw milk in the summer is conclusively demonstrated,<sup>2</sup> and universal pasteurization is a most important factor in reducing infant morbidity and mortality.

Behring<sup>3</sup> and Richie<sup>4</sup> argue in favor of using preservatives, and place especial stress upon formalin in from 1 to 500 to 1 to 10,000. Behring claims that formalin in these proportions is tasteless and harmless; that the curdling is more flocculent, the milk more digestible and the immune and antibodies unimpaired. Personally I have had considerable annoyance with milk containing formalin, making it impossible to put the milk through the first process of digestion. If, then, this formalinized milk resists the action of pepsin, the enzymes of the milk must also be destroyed, and its digestibility must be greatly impaired.

The recommending of preservatives for milk is an exceedingly dangerous procedure, and its enactment would encourage careless and indifferent dairymen to deliver any amount of filth. Electrical preservation, now under experimentation, may clear this problem for the future. Just now we are most concerned in the production of a pure, clean milk and its adaptability by suitable modification to individual cases.

The selection and care of the milch cow, the handling of the milk, and its modification for the infant has been thoroughly presented to the profession, and I will take time simply to mention that the outline suggested by the United States Department of Agriculture for the improvement of market milk should be inforced by law.

Buttermilk feeding<sup>5</sup> has been revived, and its advocate believes it to be a life-saving preparation for sick children. Men frequently lose sight of the modification of sweet whey, which is the sheet anchor in digestive disorders. Usually when a physician vibrates from boiled flour and buttermilk to proprietary foods and condensed milk, he demonstrates to everybody, possibly himself included, that as a baby feeder he is a failure.

The exact rôle of the Shiga-Flexner bacillus in summer diarrhea is still under consideration. The organism was found in 62 out of 64 consecutive cases examined at the Vanderbilt Clinic.<sup>6</sup> These cases presented all the clinical types, from the mildest intestinal indigestion to severe colitis. Twenty per cent. of them were breast-fed, and of the fatal cases a large number showed no evidence of profound structural lesion.

Flexner and other workers in this field believe that the bacillus of dysentery produces the primary lesions early, and the subsequent pathological change is the result of a mixed infection. This being the case, the antidysentery serum of Flexner, in order to be of much virtue, should be given early and before the usual mixed infection and anatomical changes occur. Holt<sup>7</sup> reports use of the serum in eight cases, two of which were moribund. In three no effect was seen, and in the other three improvement was strikingly apparent.

Zahorsky<sup>8</sup> concludes the report of his experience with the statement that monovalent anti-dysentery serum is too uncertain for general use, but the polyclonal serum should be given in all cases of summer diarrhea.

Hastings<sup>9</sup> concludes his report of the *Bacillus dysenteriae* in Boston and vicinity with the statement that no "positive conclusions can be drawn from our experience with the serum." "We are confident that no harm was done." The judicious employment of gelatin<sup>10</sup> and olive oil<sup>11</sup> makes an important addition to the well-recognized management of ileocolitis.

The serum treatment of typhoid fever has received considerable encouragement from Josias,<sup>12</sup> who reports fifty cases with a mortality of 4 per cent., while during the same period other cases treated in the usual manner gave a mortality of 14.2 per cent. When injected at the onset, the dose given was one cubic centimeter to every thirty kilograms of weight. In one-third of the cases the temperature descended on the day of injection and continued to fall until convalescence. Patients inoculated before the seventh day made a quick recovery. In a few the treatment seemed to have no influence whatever, and in young children the injection was sometimes followed by severe abdominal pain that continued for several days, giving suspicion of peritonitis.

Einhorn<sup>13</sup> recommends early injection, even before diagnosis is certain. In his cases the treatment was instituted from the ninth to the fifteenth day. He notes the reduction of temperature from one to two degrees and the general improvement of the sensory and nervous symptoms. De Rochemont<sup>14</sup> reports his experience with Jezz's serum, and concludes that while wonderful cures can not be cited, in every case the course was modified and rendered milder, though not shortened.

Pertussis has received its annual allotment of therapeutic agents, all of them of inestimable value in the hands of the originator. Arnhem makes the remarkable statement that the "paroxysms are to be considered a healing process by

mechanically removing the specific bacteria." Most authorities agree, however, that the paroxysm is the most distressing and the most dangerous part of the disease, and treatment directed to its relief is rational.

Formaldehyde<sup>18</sup> in from one-half to one per cent. solution, sprayed into the pharynx once a day; two per cent. solution of flouroform,<sup>19</sup> given in doses of from 100 to 150 grams daily; and calcium sulphide<sup>20</sup> in .03 gram doses every hour or two until the breath smells of hydrogen sulphide; are among the remedies receiving much support.

Manipulation of the lower jaw after the method of Naegeli,<sup>18</sup> will control the paroxysm in most instances in older children. Mothers and attendants should be instructed in this procedure. The control of the laryngismus relieves the usual vomiting and resulting emaciation, and with the supportive measures, good food and fresh air, meets the indications.

The fresh air treatment<sup>21</sup> is emphasized in the records of the Edinburgh Hospital. Of 74 cases treated indoors 51 died, a mortality of 66.9 per cent. Of 76 cases treated out of doors, partly or entirely, 24 died, a mortality of 31.5 per cent.

Dr. Mallory's<sup>22</sup> finding a series of bodies in the skin and superficial lymph spaces of four patients who died in the eruptive stage of scarlet fever, is far from proving the etiological factor of this disease. Doehle,<sup>23</sup> twelve years ago, described a peculiar variety of protozoa which he found in the blood of patients suffering from some of the eruptive diseases, among them scarlet fever. His findings were never confirmed.

We do know, however, that the streptococcus is present on the tonsils in almost every case; in the blood in 15 per cent. of the cases during life, and in 80 per cent. after death.<sup>24</sup> It has not been found in the blood before the third day. In fulminating cases the organism may not be demonstrable, but when uncomplicated with streptococemia, scarlet fever usually runs a mild course. The streptococcus is generally accountable for the severity of the disease, especially the complications and sequelæ, and these complications can be prevented by the early use of an efficient serum administered in sufficiently large doses.

From the literature of the past twelve months I have collected 384 reported cases, and about double that number mentioned where the anti-streptococcus serum has been administered in this disease. The largest number reported by any one observer was 112 cases treated at St. Anna Kinderspital by T. Escherich.<sup>25</sup>

In order to test the merits of the serum, Escherich employed it only in severe cases in which the toxic symptoms predominated. In doses of from 100 to 200 c.cm. early injected, he claims the serum acted almost like magic. In from four to twelve hours the temperature fell, the pulse and respiration slowed and the exanthema faded. The temperature remained normal in favorable cases, and the eruption disappeared on the following day. In less favorable cases there was

some slight rise in the temperature of short duration. In later cases with necrotic pharynx, glandular enlargement and other complications, the injection was without value. The mortality was reduced one-half. The summary of his cases is as follows:

Of 38 cases injected on the first and second day all recovered; of 27 cases injected on the third day two died, mortality 7.4 per cent.; of 23 cases injected on the fourth day four died, mortality 17.4 per cent.; of 20 cases injected on the fifth day six died, mortality 30 per cent.; of four cases injected on the ninth day two died, mortality 50 per cent.

Escherich believes the day not far distant when antistreptococcus serum will stand in the same relation to scarlet fever that antidiphtheritic serum does to diphtheria.

The summary of the changes noted by the various clinicians can be stated briefly as follows: Fall in temperature, decrease in the frequency of the pulse and respiration, and an improvement in the tension and rhythm of the former, clearing of the sensorium, prevention or amelioration of complications and rapid convalescence.

A polyvalent serum, containing the antibodies of human streptococci, is the only one to be depended upon. The serum appears not to destroy but to reduce the virulence of the organism, thus enabling the tissue cells to become more energetic in defense, indirectly favoring phagocytosis and absorption.<sup>26</sup>

Early use of the serum is to be recommended in all cases of scarlet fever, and in all other diseases where the streptococcus is playing a primary or secondary rôle. Smith<sup>27</sup> reports use of the serum in a series of smallpox cases with excellent results.

Widowitz<sup>28</sup> reports the use of urotropin in 102 cases of scarlet fever without a single case of nephritis. He gives from .05 to .5 grams, according to the age, during the first three days of the disease, and again at the beginning of the third week for another three days.

Seiffert<sup>29</sup> has had some remarkable results from the employment of lumbar puncture in uremia occurring in scarletinal nephritis. In several cases he withdrew from five to thirty cubic centimeters of spinal fluid. Cases with loss of consciousness and stertorous breathing recovered consciousness in thirty minutes after the operation and subsequently recovered entirely.

The therapeutic suggestions and clinical observations of chorea minor have been about as important and conclusive as the pathological<sup>28</sup> and bacteriological findings.

We are constantly confronted with individual predispositions in children, born of neurotic stock, that are influenced by the slightest degree of nerve pressure, whether it be of school, adolescence or reflexes; and an infection or intoxication that would pass unnoticed in well-balanced nervous systems, would in these produce chorea or many other nervous phenomena.

The association of chorea and "rheumatism"

can be demonstrated in the majority of cases if kept under observation sufficiently long. The rheumatic complication of the first attack is frequently overlooked, because the heart is not carefully examined, the fever of a low degree is unobserved, the "growing pains," enlarged tonsils and case history is not considered. Micro-organisms of the streptococcal group have been found in both of these disorders,<sup>20</sup> and may possibly have had something to do with the individual cases examined, but we have no proof of their constancy or their specific character. The report of a single case<sup>20</sup> that resisted all treatment until fifteen injections of antistreptococcus serum was given, only proves that this particular case was either due to or complicated with the streptococcus, that the serum used must have been of low potency, and that it would be well to examine the blood of all these cases and use a serum when indicated.

Inasmuch as we find chorea complicating pronounced anemia and infectious diseases, not associated with rheumatism, we are led to believe that many organisms and ptomaines are capable of producing these same muscular spasms. Where there is any indication of "rheumatism" in these cases, treatment should be begun with sodium salicylate from .2 to 1 gram dissolved in a glass of water and taken two hours after meals.

The colossal doses and method of administration recommended by Lees<sup>21</sup> would put any stomach out of commission before it is time to take up the arsenic treatment. Smith<sup>22</sup> uses 4 c.c. doses of the fluid extract of ergot every three or four hours, in children of seven years, and continues the treatment for weeks if necessary. In stubborn cases he increases the dose to 6 c.c. and adds a moderate dose of strychnine. He regards this treatment as more reliable than the arsenic treatment, but the report of only two cases does not justify the conclusion.

In the management of pulmonary disorders there is nothing so important as fresh air, sunshine and isolation. As 50 per cent. of the pneumonias are due to bad air, more than half of these secondary inflammations should be avoided.

Many of these cases do well on the cold air treatment,<sup>23</sup> but infants and young children must have their air at 68° F. to prevent the irritating cough. The early respiratory disturbances, with dryness and congestion, are benefited by inhalations<sup>24</sup> of steam carrying eucalyptus, creosote, tinct. benzoin comp. and aromatics. If these inhalations are given under a tent and there is a lack of fresh air, oxygen may be administered simultaneously.

These cases must be supported, but not overfed, by a suitable amount of easily digested or pre-digested food, with an abundance of water. As long as the fever is doing no damage and the child is comfortable, it should be let alone. Cold applications can usually be limited to the head. The tepid sponge bath and hot mustard foot bath are excellent measures for equalizing the circulation.

The use of poultices, packs and jackets is dying out with the good old grandmother. Mild stimulating applications, as that suggested by Acker of equal parts of the oils of olive, amber and clove, are more pleasant and efficacious, and have none of the objectionable features.

The potassium iodide treatment of pneumonia is lauded by Altschul,<sup>25</sup> who claims not to have had a death in twelve years, out of 62 cases. His method is to give an initial dose of 10 or 15 grains, increasing it by 5 to 10 grains, every two or three hours day and night, according to the severity of the case, until defervescence is well established. In this manner he has given from 1,000 to 3,000 grains of the drug daily in a 50 per cent. solution in milk. One patient, a child, received over half of a pound of the drug in two days (2,100 grains daily for two days) without showing any signs of intolerance.

In cerebrospinal meningitis lumbar puncture, withdrawal of fluid by aspiration, and injection of 3 to 12 c.c. of a 1 per cent. solution of lysol, after the method of Seager,<sup>26</sup> omitting the canal washing with normal salt solution, has proved of great virtue in three cases reported by Manger,<sup>27</sup> and is considered a hopeful measure by Franca.<sup>28</sup>

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**Fat in Pigments.**—By employing specific stains for fatty tissue, E. SEHRT (*Virchow's Archiv*, Vol. 177, No. 2) could detect the presence of fat in all pigments, even in those causing brown atrophy of the heart and liver. Lutein of the ovary is the only pigment in the human body which may be classed among the lipochromes, since it gives the sulphuric acid and the iodine reaction. Even after tissues have been subjected to fat-solvents for a long time, the sudden reaction will still be positive, which is not the case with the other pigments.

**HEREDITARY CHOREA IN EIGHTEEN MEMBERS  
OF A FAMILY, WITH A REPORT  
OF THREE CASES.**

BY MALCOLM MACKAY, B.A., M.D., C.M.  
OF MONTREAL, CANADA;

CLINICAL ASSISTANT IN NEUROLOGY, ROYAL VICTORIA HOSPITAL;  
ASSISTANT DEMONSTRATOR IN PATHOLOGY,  
MCGILL UNIVERSITY, MONTREAL.

MANY cases of hereditary chorea have been reported since Huntingdon, in a few happy sentences, described the symptoms, but it is somewhat unusual to obtain a family history of eighteen individuals in four generations affected with the disorder. Doubtless among French-Canadians, whose fecundity is proverbial, the proportion of the diseased to the healthy is not excessive, nevertheless the report loses little of its interest on this account.

In obtaining the family history from the wife of one of the patients, precautions were taken to corroborate her statements by questioning the neighbors, and comparing her story with the account given by the first patient examined. The memory of the latter could not be relied upon, but his narration, as far as it went, agreed perfectly with that related by his sister-in-law, who furnished further details.

Jean Baptiste J., farmer, was the first member of the family affected, as far as can be ascertained. The trouble began late in life, and after having suffered from typical choreic movements for twelve years, he died at the age of eighty years. He was married and had a family of fourteen, and of these five daughters and one son were seized with the same malady.

Taking these children in turn, we come to the second case, Mme. P., who died at an advanced age, showing, besides the movements, well-marked mental symptoms. The onset of the trouble was in her forty-seventh year, and she became gradually worse for some ten or twelve years, when she was removed to the asylum at Longue Pointe. She was married and had a family of eight, all healthy so far as is known.

The third case, Mme. D., also died at the asylum at about eighty years of age. She had suffered for some ten years before admission to the institution, and lived for five or six years after being immured. The number of her family could not be definitely ascertained, but it was large, and one male was affected.

The fourth case, Mme. B., has a history very similar, for she died five years after being placed in the asylum, at the age of seventy-five years. She had a large family, all healthy.

Mme. R., the fifth case, died at the age of sixty-five years, after suffering for fifteen years from choreiform movements. The mental disturbance was not marked. She was married and had one son and two daughters. Of these one daughter had the disease, and she in turn had a son and daughter affected.

Mme. C., the sixth case, died at the age of seventy-seven years, after having had well marked movements for twenty years. She had eighteen children, and of these six males have chorea.

J. B. J., junior, the seventh case, is the only one giving a doubtful history. He was the youngest child, and at present is some forty years of age. He began to be troubled with jerking movements of the arms and face which continued to be well marked for two years. He consulted some physician shortly after the onset, who put him on tonic treatment with the happy result, or coincidence, of the entire cessation of the manifestations of the disease, and from this time he has been perfectly well. He is married and has six healthy children.

Thus far we have been dealing with the family of J. B. J., senior. Let us now turn to their children.

The eighth case, son of Mme. D., became affected at the age of twenty-five years, and he is known to have had well-marked twitchings of the extremities for several years before leaving for the United States twelve years ago. Nothing further can be discovered of his subsequent history.

The ninth case, a daughter of Mme. R., died at the age of forty-five years. The movements had been very violent for fifteen years before death, and they were said to have been first noticed at the age of twenty-five years. She was married and had one son and one daughter with the disease.

Joseph C., the tenth case, oldest son of Mme. C., is a man aged sixty-five years, and for the past ten years has had the typical symptoms of Huntingdon's chorea, while for several years he has been mentally weak. He is married, but has no children.

The eleventh case, Jean Baptiste C., son of Mme. C., was first seen and examined on April 16, 1904. He is a farmer, aged sixty-three years, married, with a family of eighteen children, with no history of rheumatism, tonsillitis or chorea. As a young man he was considered to have exceptional ability, although uneducated. His general health is good and his appetite hearty, as he is hungry "all the time" and very fond of dainties. The present trouble began some twenty years ago when his wife noticed that he was unusually loquacious, and anxious to lead the conversation upon every occasion, at the same time he became restless at night, and very soon movements began in all four extremities, although at first the arms appeared to be more affected than the legs. The twitching was invariably increased at night. Shortly afterward he became capricious and easily angered, also quite malicious, pinching his wife intolerably. He speedily became worse and his whole body and face began to jerk as well as the extremities, his speech became incoherent, his memory failed and he began to have peculiar ideas, at times he was unmanageable and would not wash himself or permit any one to touch him for this purpose. He has not done any work for fifteen years and even before this time he was useless for hard labor.

*Examination.*—The patient is of slight build, rather under middle height and somewhat

stooped. Musculature is below the average, complexion clear, hair gray. He has a sly, silly expression, and winks and nods as if having a joke at the expense of one of the company. His movements are bizarre in the extreme and are exaggerated when in the presence of strangers. His body twists in and out at the hips and knees, and his feet shuffle as he staggers round the room like a drunken man, while his hands, wrists, and arms are continually writhing and jumping with a motion which suggests a combination of athetosis and chorea. At the same time the expression of his face changes from a smile and a wink to a silly vacant stare or a look of low cunning. The movements are said to come on at intervals during sleep, frequently without waking him.

The gait is sluggish, awkward and staggering, and he walks with a broad base, although rarely with his eyes directed to the ground. The will seems to have but little influence upon the movements, and the state of his clothes amply testifies to the fact that he spills most of his food while conveying it to his mouth. His mental condition is peculiar in that he has intervals during which his memory is fairly good, and frequently at such times he realizes his present state and melts into tears pitying his miserable lot. Then follows a period of indifference and subsequently he becomes smiling and jolly, then boisterous, with a desire to be mischievous, but even in his more violent moods he is easily frightened. During one examination lasting about two hours he showed all the phases above mentioned. At times he has strange fancies, as, for example, about a year and a half ago he began to grow a beard, although he had been clean shaven all his life. On being asked his reason, he said that Christ died with a full beard, and that if he died in the same condition he would also go directly to Heaven.

His speech is markedly indistinct and muttering, and very difficult to understand. It is also jerking, though not syllabic, several words being ejected at a time, frequently followed by a cough or contortion of the face. His articulation varies a good deal with his state of mind, for while in a rational mood every word was enunciated with distinctness, a little later none but his wife and intimate friends could understand what he meant.

He appears to understand very well what is said to him, and makes great efforts when asked if he remembers a name or event, and if given time is occasionally able to recall the required information. He has never been able to read or write, so that these functions could not be tested. His sleep is poor and very much interrupted by the movements, although, as before mentioned, he often remains asleep while they are going on. The muscles are small, but firm, and their voluntary power fairly good. His grip is irregular and much increased during spasm. Sensation, as far as one can judge, is normal. The knee-jerks are active, and there is no ankle or rectus clonus. There is no Rhomberg's sign. He is able to swallow without difficulty, once food has reached his mouth. His eyes are clear, blue in color, and

the pupils are equal, normal in size, and react to light and accommodation. There is no nystagmus. The pulse is of good volume and tension, regular, and the arteries are in fairly good condition for a man of sixty-three years.

The twelfth case, Basil C., a man of fifty-four years, has shown definite signs of the disorder, in movements of the extremities, for the past six years. He is married and has two girls and one boy in good health.

The thirteenth case, Francois C., was the first of the series to come under observation. He presented himself at the Neurological Out-Door Clinic of the Royal Victoria Hospital, Montreal, on December 17, 1903, and his history at once prompted an excursion to his native village to examine into the truth of his statements. He is a man forty-nine years of age, married, with eleven healthy children. He enjoyed good health until ten years ago, when he suffered with severe headaches, which continued off and on until the beginning of the present illness, some four years ago. The patient's habits are regular, he has taken alcohol in moderation and denies all venereal trouble.

The movements were first seen in the legs, soon followed by involvement of the arms and face. The onset was quite slow, and the patient has seen little or no change during the past three years. The movements are worse at night, and sleeplessness is the most annoying symptom.

**Examination.**—The patient is a man of medium size, fairly good musculature, and looks rather older than the age stated. His expression is intelligent, though at times ludicrous from the contortions produced by the disease. There is an almost constant jerking of the shoulders, upper arms, head and neck. The hands are comparatively steady, and the facial muscles remain free from movements for several minutes at a time. The legs are also fairly steady while the patient remains seated, but the gait is slightly staggering when he attempts to walk about. The extremities on the left side are more markedly involved than those on the right. Voluntary power is good, but the grip is always increased with each spasm, and in consequence is irregular. There is a certain amount of voluntary control of the movements, and co-ordination is good. There is no Rhomberg's sign, and no disturbance of sensation. The knee-jerks are active and the plantar reflex normal. There is no ankle or rectus clonus. The pupils are equal, of normal size, and react to light and accommodation. The external muscles are normal, and there is no nystagmus.

The cardiovascular and other systems are normal. The mental condition is fairly good, but the memory is defective and his relations state that he is becoming somewhat unreasonable and irritable when at home. This patient has been kept under observation for the past five months, and has shown but little change for better or worse. A small dose of bromide at night has enabled him to sleep better, but treatment has, as usual, been of no permanent value.

The fourteenth case, Narcisse C., aged fifty-three years, is one of the most interesting of the group. The first signs were noticed at an early age, for the symptoms have been present for over twenty years. He became violent very soon after the onset, and jealousy of his wife appeared the first notable evidence of mental derangement. He frequently flew into violent passions, and on one occasion when at church he pulled his wife around the building by the hair of her head, much to the consternation of the peaceful "habitants." He was confined in the asylum, but managed to escape, and for eighteen days nothing was heard of him, but he gradually worked his way from Quebec to Montreal, a distance of 180 miles, and suddenly appeared among his relatives, accusing them of immuring him without cause. He soon returned to his old habits of violence, and was once more placed in the asylum, where he still remains. He had fourteen children, twelve of whom are living, but they were sent away from home, as the mother thought that the disease was catching, and their present condition is not known.

Antoine C., the fifteenth case, is about thirty years old, and has had the movements for three years. He has a family of eight, all in good health.

The following three cases have appeared in the fourth generation:

The sixteenth case, a granddaughter of Mme. R., affected at the early age of twenty, has had the disease for about two years.

The seventeenth case, her brother, about one year younger, developed the movements about the same time.

The eighteenth case, Jean Baptiste C., Jr., son of J. B. C., has just begun to show signs of the disease, and is the third case examined. He is a young man, aged twenty-six years, a farmer, single, and has always enjoyed good health, although never robust, heavy labor being very fatiguing. The trouble began to manifest itself about a year ago, when muscular twitchings of the arms, with restlessness, were noticed at night. His sleep became disturbed, and he would frequently wake up at night with the jerking of his body and extremities. He has become slightly but gradually worse, and at present the movements occur at intervals in the daytime, as well as at night.

**Examination.**—The patient resembled his father in build and musculature, in that he is slight and below the middle height. His face has rather a sullen expression and he looks rather stupid, chiefly on account of the position of his eyelids, which are kept half closed. The lids are constantly winking, giving him the appearance so characteristic of albinos, when they are exposed to bright daylight. This peculiarity was well demonstrated a short time ago, when he had his photograph taken, for in all the negatives his eyes were closed as if he were asleep. His gait is normal, although rather slow and careful for a man of his age. A few twitching movements of the left arm and the strange rapid winking of the eyelids are all the motor phenomena noticed in

the examination during the daytime, the muscular power being good.

In answering questions the speech is slow and he seems to require a little time to think before replying, but articulation is perfect and uninterrupted. The knee-jerks are present and there is no clonus. His eyes are blue and the amount of pigment in the iris appears to be normal. The pupils are equal, of normal size, and react to light and accommodation, and the external muscles are functionally perfect. There is no nystagmus. The other symptoms are normal.

There are a few points of interest in the series which may be worthy of attention. First, the number of children in the families. The occurrence of Huntingdon's chorea in large families was pointed out some years ago, but in the case of French-Canadians ten or fifteen children is not at all an unusual number, and I think that little stress can be placed upon this point. Then the descendants appear to develop the symptoms earlier than their parents. This is not usually an accepted characteristic of hereditary chorea, but it seems to be fairly constant in this series. Of course, the contention may with truth be urged that a great many of the children are yet young, and may still become affected, thus raising the proportion. The distribution among males and females is, as usual, about the same, and no cases were found in which a generation had been skipped. The increase in violence of the twitching at night with resulting sleeplessness, in these patients examined, was very marked, and indeed the most distressing symptom, this together with the continuance of the movements during sleep, though not unknown, is not usual.

The pathology of Huntingdon's chorea is quite as indefinite as that of Sydenham's chorea, and the many findings by different investigators seem to leave us in as great darkness as before, but I think that the hint given by Sir W. Gowers in his able article on abiotrophy should form solid foundation for future study. The occurrence of the disease in groups which have the tie of consanguinity, the slow development of the symptoms, usually in middle life, the absence of adequate cause, and the correspondence of the outward manifestations to the functions of the cortex, all point to an inherent defect in vitality of the structures forming the gray matter of the brain; while the comparative or absolute freedom from disease of the rest of the body suggests that the disease is limited to this definite group of cells. These points justify the designation "abiotic" to this disease, and by fully understanding the term we can form a definite idea of the course and prognosis of the malady.

Evidently the whole cortex is not involved at once, nor is it always involved in the same manner, as in one of the cases cited the mental symptoms were among the first to appear and they became greater as the process advanced, while the motor symptoms were subordinate. In another case the advance upon the arm and face areas were subsequent to a well-marked speech dis-

turbance which might well be due to changes in the phycic areas. In a third case the legs were primarily affected, although the arms and head very soon showed a greater agitation. These facts point to a general involvement of similar neurons or parts of neurons, advancing gradually, according to the lines of the least resistance.

Treatment in all conditions of this kind must from the very nature of the process be unsatisfactory, but a few cases appear to have been arrested spontaneously or otherwise, and the history of No. 7, the only doubtful case of this series, may offer some slight encouragement for one to attempt to check the progress of this form of abiotrophy of the nervous system.

#### INFLUENZA IN CHILDREN.

BY KENNETH E. KELLOGG, M.D.,  
OF NEW BRITAIN, CONN.

It is not over fourteen years since the first extensive epidemic of influenza overran this country, and since that time the disease has been more or less constantly with us. It was at first considered by the medical profession of little more importance than an ordinary coryza. From that time until this, however, we have grown more and more to look upon it as an exceedingly serious condition, until now, when we realize that instead of a local and temporary process, it is a universal affection and far reaching in its effects. It is probable that even at the present time many laymen fail to realize the fact that influenza is a highly contagious affection, and one of the most virulent of the acute specific diseases.

In addition to the reviewing of the general manifestations of the disease as it appears in children, and outlining the general treatment, it is the object of this paper to emphasize the extreme seriousness of the condition and to make a plea for the enlightenment, *through the medical man, of the public* on the question.

The disease as it exists in children presents a somewhat different aspect and runs oftentimes a more protracted course than in adults. The Cannon-Pfeiffer bacillus, which is admittedly the specific cause of the disease, is a small, slender, non-sporing, non-motile, aerobic organism which has the peculiarity of developing only upon cultures which contain blood-coloring matter.

The germ has very little capacity for life outside the diseased body, dies very quickly in water, and is destroyed by rapid drying. Therefore it is believed that it is not propagated by the air or water as much as it is carried by the catarrhal secretions from the afflicted patient. Other organisms, especially the pneumococcus and streptococcus, are often associated with the influenza bacillus, both in the acute and chronic cases. Pfeiffer has said that the influenza bacillus may be found in the catarrhal secretions many months after the disease has apparently subsided. Under certain conditions, therefore, the excitant with which to start an epidemic is frequently present.

The detection of the influenza bacillus in the sputum or in the blood, would appear as important a factor in the diagnosis of influenza as the demonstration of the tubercle bacillus in tuberculosis or the diphtheria bacillus in diphtheria.<sup>1</sup> Whereas bacterial diagnosis is not a simple process, it is sufficiently definite to allow of its being resorted to by the general practitioner. In fact, the bacterial diagnosis of the influenza bacillus involves a less complicated technic than does the study of the tubercle bacillus.

While we are accustomed to think of the nasal mucous membrane as the home of the influenza bacillus, it is becoming more and more evident that this micro-organism behaves like so many others, that it wanders, and has been found in many tissues, both during life and at autopsy. Thus the germ has been found by Hoberstet in the pericardium and endocardium, and by Flexner in the central nervous system, and Abbott claims that it has been detected in the bodies of the leucocytes.

The catarrhal symptoms are probably due to the presence of the bacillus itself, and the immediate effects of the toxin are shown by symptoms directly referable to the cerebrospinal center. The remote effects are manifested by the lowered tone of the nervous system and other tissues, producing in the patient a predisposition to many subsequent diseases.<sup>2</sup>

At autopsies of patients dying from the disease the nervous system is found much congested. There does not seem to exist any immunity to the disease, for all ages are susceptible. Much depends, however, upon the vital resistance of the individual, and upon the previous condition of the mucous membranes.

Three types of influenza have been described by some observers, as follows: The nervous type, the gastro-intestinal type and the respiratory type. Frequently one or more of these exist in combination, so that the disease, at times, assumes many phases and is exceedingly difficult to recognize, so that only by process of exclusion can one arrive at a correct diagnosis.

Holt, in 1895, at an annual meeting of the American Pediatric Society, reported a fatal case in a young infant, although he fails to mention it in his text-book.

Kerley, of New York, reports two fatal cases occurring in young infants.

*Case I.*—James F., aged six months, healthy, steadily gaining in weight, was taken suddenly with a cough, diarrhea and vomiting. Temperature first day from 99° to 101° F., second day from 99° to 101° F., third day from 103° to 105° F., fourth day from 101° to 103° F. Died on the evening of the fourth day.

*Case II.*—Child, aged fifteen months. Previous history negative, gaining steadily in weight, was taken suddenly with diarrhea, vomiting and a slight cough. Temperature first day from 102° to 103° F., second day from 103° to 104° F., third day from 101° to 101.6° F. Died on the evening of the third day.

Physical examination in both of these cases revealed only a mild bronchitis. The gastro-intestinal symptoms were those of a mild catarrh. The infants were both severely prostrated from the first and lay in a semi-comatose condition, presenting the appearance of having been stricken with a most violent poison; pulse 150 and upward, until it could not be counted; eyes sunken and rolled up; pallor extreme; face drawn and pinched; pupils dilated and muscular twitchings present. Both children were carefully watched by their nurses so that drugging was out of the question. These two cases exemplify the severe nervous system type.

In addition to the commoner symptoms of an acute catarrhal inflammation which are usually, but not always, present, there exists a band of redness upon the palatine arch, the uvula and tonsils not, as a rule, being involved. Again there is frequently present an enlargement of the papillæ of the anterior portion of the tongue.

The catarrhal symptoms are not so universal in the child as they are in the adult, but in a measure are characteristic, and are usually accompanied by an enlargement of the cervical and submaxillary glands. The fever of influenza is a strikingly irregular one, being sometimes present, sometimes absent, high in the morning and low in the evening on one day and vice versa on the next. In fact, the disease may run its course with a subnormal temperature, and in infants this is fairly common. There is a type of the disease which runs a continuous fever for a number of weeks. This simulates more or less closely typhoid fever.

Grippal infections of the small bronchial tubes in feeble infants is a very serious complication. It manifests itself by great dyspnea and cyanosis, the respiratory murmur at times being hardly audible. This infection of the lung tissue, however, is not common.

In the nervous type there appears to be more or less of a constant symptom-complex shown by peevish actions on the part of the child and the manifesting of a desire to be let alone, while it exhibits an irritability combined with an aching of the limbs shown by crying when being held or pressed upon, drowsiness, and occasionally symptoms of meningeal irritation, such as slight muscular twitchings, or sometimes well marked convulsions may be present. The temperature runs an irregular course, varying from subnormal to 106° F. The respirations may be rapid and accompanied at times by cyanosis. The prostration appears to be out of all proportion to the other symptoms, and may be extreme from the first.

The gastro-intestinal infection is evidenced by vomiting and diarrhea, being as a rule not serious; on the other hand, indeed, they may be construed as one of Nature's methods of elimination. This effort on the part of Nature is also demonstrated by the occasional eruption which simulates that found in scarlet fever. Purpura not infrequently occurs, and so may edema, both probably toxic in nature.

Many times there is a co-existing catarrhal inflammation of one or more of the accessory sinuses. This, by reason of secondary infection, may result in a purulent inflammation. This condition is evidenced by either the discharge of a mucous or muco-purulent character, especially from one side of the nose, intermittent, but at times profuse. On examination pus is seen discharging beneath the middle turbinated bone. Pain is sometimes elicited by pressure on the supra- or infra-orbital region, and is generally present over the frontal sinus. Occasionally there is marked swelling of the lids and surrounding tissues. A more common complication, however, is an extension into the ear through the Eustachian tube, resulting in a catarrhal or purulent inflammation of that organ. This complication has been a strikingly common one during this winter's epidemic.

The mastoid process is frequently involved, and, owing to the cartilaginous character of the structure of the roof of the ear in infants, an extension into the meninges is by no means rare. Postauricular abscesses are frequently found, and are much more common in children than in adults.

F. Forchheimer has written on the acute dilatation of the heart in children during the course of influenza. He has reported several cases. He believes that there are two forms of dilatation accompanying this disease; one progressively produced by the action of the toxin upon the nervous system and possibly upon the myocardium, and another occurring in conditions materially interfering with the flow of blood because of mechanical obstruction.

Nephritis accompanying influenza in children is a rare complication, but does occasionally exist, and Freeman<sup>8</sup> has reported a case of acute hemorrhagic nephritis following influenza in a four-year-old child.

Miller has subsequently reported forty cases of this nature. I have recently had two cases of acute exudative nephritis accompanying influenza in infants.

A pseudo-pertussis cough accompanying influenza in infants has come to be recognized as a fairly common symptom. This is often of a dry, non-productive, paroxysmal nature, closely resembling that found in whooping-cough. This was first reported by Forchheimer in 1900.

The diagnosis of influenza is usually arrived at, as before stated, by the process of exclusion. It is to be differentiated in children from malaria, measles, scarlet fever, diphtheria, whooping-cough, typhoid fever, pneumonia, ordinary catarrhal inflammation of the mucous membranes, cerebrospinal meningitis, acute inflammation of the lymphoid tissue in the nasopharynx and tonsillitis.

From malaria it is to be differentiated by its irregular course, by the absence of the enlarged spleen and the organisms of Lavaran in the blood, and furthermore the temperature of influenza is as a rule uninfluenced by quinine.

From measles it is to be differentiated by the time, appearance and location of the eruption of

the latter disease, the presence or absence of Koplik's spots, the course of the temperature and the existence in the community of an epidemic of one or more of the affections.<sup>4</sup>

From scarlet fever<sup>5</sup> the disease is to be distinguished by its characteristic eruption, which lasts longer and alternately fades and becomes more distinct, and, as a rule, does not appear as early as the eruption in scarlet fever. The character of the tongue in influenza is different from that seen in scarlet fever. In the former, small elevated purplish papillæ are seen on its anterior portion. Hematologists furthermore tell us that there is a leucocytosis in scarlet fever, while as a rule there is none in influenza.

From diphtheria it is to be distinguished by the absence of the characteristic membrane, but often times it is only by the assistance of a bacterial examination that we are enabled to differentiate between the two diseases. Influenza in many cases begins with a bronchitis. The tongue has the character of the "raspberry tongue," on the palate are spots or stripes; the influenza membrane is yellowish white and is not placed upon a dark red inflamed membrane, as in diphtheria, but upon a tonsil of almost normal color. The membrane is not influenced by antitoxin.

From whooping-cough the absence of fever, the persistent and well-defined whoop and the history of the attack of the latter all serve to assist in the diagnosis.

From typhoid fever it is to be distinguished by its irregular temperature, which frequently is higher in the morning than in the evening, by the absence of the enlarged spleen, by the time of appearance and character of its eruption and by the absence of the positive Widal reaction of typhoid fever. Furthermore, the eruption of influenza covers a larger area and remains longer than that seen in typhoid fever.

From pneumonia it is to be differentiated by the absence of physical signs in the chest and also by the absence of leucocytosis. Furthermore, in pneumonia the characteristic diplococci in the sputum may be recognized by simple staining.

From the ordinary catarrhal inflammation of the mucous membrane it is to be differentiated by the intense prostration which is usually disproportionate to the other symptoms, and also by the presence of glandular swellings.

Cases exhibiting nervous symptoms and indicating meningeal irritation simulate closely cerebrospinal meningitis and only a bacteriological finding will reveal the true nature of the condition.

From acute inflammation of the lymphoid tissues of the naso-pharynx, the disease is to be distinguished by the previous history of the patient. Mouth breathing, disturbed sleep, night terrors, and snoring usually antedate an acute inflammation of the lymphoid tissues. Examination of the throat will frequently reveal the presence of adenoids and enlarged tonsils.

The onset of acute tonsillitis, in differentiation from influenza is more abrupt. The temperature

is usually higher from the first, the tonsil is studded with whitish spots, but occasionally it is only by the aid of the microscope that we are enabled to distinguish between the two diseases.

In the treatment of the disease, its serious nature requires prompt and constant attendance, and its communicability calls for isolation. *The reckless exposure of the infected in influenza makes the disease so difficult to eradicate.* The child should be kept in a quiet room of uniform temperature and visitors or unnecessary attendants excluded. He should also be protected against drafts and chilling of the skin, but at the same time should be allowed plenty of fresh, pure air. The excretions should be received in strong antiseptic solutions, which should also be applied to the spoons, forks and plates. The patient should not remain too long a time in one room in order that reinfection may be prevented. The room should be thoroughly aired and disinfected after his departure. Owing to the intense depression of the nervous system, the rest should be complete and prompt and stimulating treatment administered from the first.

If suffering from an attack of a severely toxic nature the child should not be lifted or carried in the upright position. The function of elimination should be stimulated; the bowels freely opened by split doses of calomel, with or without castor oil, plenty of water given to promote diuresis, and at the outset a diaphoretic, in the form of a hot acidulous drink, should be administered. Hydrotherapeutic measures should be used; dry or moist heat, hot water or steam baths, or hot packs every few hours until a free diaphoresis is established. If the fever is high the cold pack may be superior, at the same time the feet and hands should be kept warm by hot water bottles or mustard baths. This cold pack might well be followed by a saline rectal injection.

To allay the nervous and muscular manifestations in the sthenic cases, phenacetin appears more desirable than opium. It should be given, of course, in small repeated doses. It is prompt in its action, has no cumulative effects, does not produce gastric disturbances, and has probably the least depressing effect of any of the antipyretics. In cases of collapse and evidences of toxæmia a saline injection, as before mentioned, will tend to tide the patient over a critical period. *All measures which serve to depress the nervous system cannot be too strongly condemned. The stronger coal tar products, such as acetanilid, being distinctly contra-indicated.* The nerve depressing action of the toxins upon the great centers and upon the cardiac muscle prohibit the use of such drugs. The routine use of strychnine appears to be an important adjunct in the treatment of all these cases. I believe, however, that the condition frequently justifies much larger doses than are usually given.

The elimination of toxins through various channels should be constantly stimulated. It is possible that the coryza, the diarrhea and the eruption are simply expressions of Nature's effort of

elimination, and this effort we should respect and encourage rather than discourage. For this reason the writer does not believe in the routine use of opium in all cases, but only in those whose eliminative processes are otherwise sufficiently active.

Salipyrine is considered by a number of eminent authorities to be almost a specific in influenza in children. They give from two to four grains to a child from five to ten years old. Inasmuch as this drug, however, contains antipyrine it would seem to the writer much inferior to phenacetin.

For the catarrhal symptoms, and with a possible view of limiting an extension, a saline nasopharyngeal spray will be of service. In the administration of this spray, however, extreme caution must be observed lest infection be conveyed through the Eustachian tube. To avoid this the child's head should be turned upon its side and the uppermost nostril sprayed. The position should then be reversed and the procedure repeated. To combat a decided turgescence of the mucous membrane of the nose and throat an adrenalin chloride solution will allow a freer respiration and possibly limit an extension into the Eustachian tube and subsequent ear abscess.

When symptoms of ear involvement appear, and especially if bulging of the membrane occurs, a free and early incision followed by a mild and gentle irrigation of a warm bichloride solution should be practised. Where the symptoms of ear inflammation are exceedingly mild the use of an ice-cap, and the application of leeches in some cases may be permissible, serving to limit the process, but in the vast majority of instances an early incision is necessary. Lanolin, in which is incorporated ichthyl, appears to be especially beneficial to the glandular swellings of influenza. The bronchopneumonia and gastro-intestinal types call for treatment which is little different from the treatment of these conditions when not produced by influenza. Cases running a subacute course are frequently benefited by a change of air.

I think it is now generally accepted that many acute infections, rheumatic fever, measles, scarlet fever, whooping-cough, influenza and others gain entrance into the system through the lymphoid tissues. Consequently it behoves us, as a preventive measure, to see to it that our children's throats are kept in as nearly normal condition as possible, to have adenoids and hypertrophied tonsils removed when they are sufficiently large to produce symptoms, in order that the subsequent infections may be at least modified in severity if not altogether prevented.

The children should sleep in well-ventilated rooms; rooms exposed to the sunshine and fresh air by day and those which allow plenty of fresh flowing air by night. They should be properly but not overclothed, their wrists, hands and feet should be kept constantly warm, they should receive plain but nourishing food at regular intervals, their stomachs should be kept in the best possible condition, they should abstain from

sweets, tea and coffee, and should be allowed to spend a number of hours each pleasant day out of doors. Fatigue, however, should be prevented.

During recent years the morbidity of tuberculosis has increased in a measure, no doubt owing to the vulnerability of the mucous membrane following grip. In many postinfluenza glandular swellings in children is the tubercle bacillus waiting only for an exciting cause when it may multiply and in time produce a fatal tuberculosis.

In dealing with a disease which may be so profound in its immediate, far reaching and disastrous in its remote effects, it is the duty of the members of the profession, who are guardians of the public health, to sound a warning note, especially during epidemics; to teach the public to look upon the disease in its true light; to teach that it is a highly communicable disease, a disease that at any time may assume a rapidly serious aspect; a disease which produces a fertile soil for many subsequent infections; and one which may result in chronic invalidism.

How few mothers are aware that their little one suffering from a pulmonary tuberculosis or a chronic otitis, or an endocarditis, one or more of the many diseases of childhood, subacute or chronic, has had its way paved by what was first considered "simply a grip cold."

In instituting treatment for the immediate condition we fulfill but half of our duty. Surely preventive medicine is equally important and productive of results as curative, and to no other disease can preventive medicine be applied with richer returns than to influenza.

#### REPORT OF A CASE OF ADDISON'S DISEASE TREATED BY MEANS OF SUPRARENAL EX- TRACT AND ADRENALIN CHLORIDE.

BY DOUGLAS SYMMERS, M.D.,  
MEMBER OF THE RESIDENT STAFF OF THE CITY (CHARITY) HOSPITAL,  
OF NEW YORK.

THAT portion of the English, French and German literature devoted to the consideration of the so-called specific treatment of Addison's disease by means of preparations of suprarenal gland, has been admirably digested by Dr. Edward W. Adams, of London, whose paper in the *Practitioner* for October, 1903, includes an analysis of 97 cases. It is probably the most complete exposition of the subject in the language.

Seven of the 97 patients were made distinctly worse by the treatment, 43 derived no real benefit, 31 showed marked improvement and 16 were permanently cured. The methods of applying organotherapy in Addison's disease, Dr. Adams groups under five heads. A sixth and newer, but comparatively untried, method follows as a logical sequence and involves the use of such preparations of suprarenal gland as adrenalin chloride.

1. *Suprarenal Grafts*.—Three patients have been treated by this method and all died. One was a child of fourteen, into the cellular struc-

tures of whose abdominal wall the suprarenal glands of a dog were grafted. Death resulted on the third day and was preceded by elevation of temperature and coma. The two other patients received subcutaneous grafts of the suprarenals of a dog in both sides of the abdominal wall, local anesthesia being employed. Both died within twenty-four hours with symptoms of hyperpyrexia and prostration. Such speedily fatal results, while due no doubt, in these three instances, to the effect of the grafts, are not unknown in Addison's disease, no matter what the treatment. Addison himself, and, since his time, Dieulafoy, Anderson, Bradbury and Osler have called attention to the occurrence of sudden death in this condition. Dieulafoy, Anderson and Bradbury have noted the more frequent occurrence of sudden death in Addison's disease without pigmentation.

2. *Fresh Gland by the Mouth.*—Nine patients have been treated by this method. One became worse, one derived no real benefit, six were markedly improved and one permanently relieved.

3. *Hypodermic and Intramuscular Injection.*—Eleven patients have been so treated. One became worse, six derived no benefit, three were markedly improved and one permanently benefited.

4. *Fluid or Solid Extract of Suprarenal Gland by Mouth.*—Sixty-one patients were treated after this method. Two were made worse, 32 derived no benefit, 17 were markedly improved and ten were permanently relieved.

5. *Mixed Methods.*—Five patients have been so treated. Three were markedly improved and two cured.

6. *Adrenalin Chloride or Similar Preparations of the Active Principle of Suprarenal Gland.*—There is but one recorded case of Addison's disease treated by this method. The case in question is reported by Raven in the *British Medical Journal* for January 16, 1904. The patient was a middle-aged woman who, in 1893, developed some pigmentation of the skin after an attack of scarlet fever. In the course of the next four years the degree of pigmentation increased and she suffered numerous syncopal attacks, diarrhea and vomiting. In 1901 she was treated by tablets of the extract of suprarenal gland. Finally she had a number of convulsions, the pulse became very rapid and small and coma supervened. The pigmentation was now quite general and involved the buccal and other mucous membranes, and emaciation was marked. The heart sounds, however, were good. At this moment she was given five minims of a 1:1,000 solution of adrenalin chloride three times a day, and after a week the pulse became stronger, consciousness returned and the convulsions ceased. After the lapse of two weeks the dose was increased to ten minims three times a day. At the end of a month the pulse was slower and more full, and the pigmentation had distinctly decreased. The dose was increased to 20 minims and then to half a dram three times a day, but had to be reduced now and

then. The patient improved steadily and after eleven months was able to indulge in moderate exercise, the pigmentation having faded distinctly and the syncopal attacks and gastro-intestinal disturbances having ceased entirely.

The universal adoption of this or of similar substances in the treatment of Addison's disease would seem to be justified, since they more nearly approach the fulfilment of the ideal method of introducing into the general circulation that principle which is lacking, and upon whose absence the condition described as Addison's disease would seem most likely to depend. However true this may be, there are those who would weight their use with the objection that absorption by mouth does not occur and that hypodermic injection is almost immediately followed by resolution into inert products of oxidation.

Of seventeen fatal cases of Addison's disease where the patients had been subjected to organotherapy, in two the suprarenals were completely absent. Both patients were markedly benefited. In two the suprarenals were shrunken and fibrous. One of these patients benefited greatly, the other derived distinct temporary benefit. In no one of the four patients was any tuberculous change noted. In another patient there was a tuberculous nodule in one kidney and in this case organotherapy afforded great relief. The patient succumbed to tuberculous meningitis. In five of the remaining number caseating foci and sclerotic nodules existed. Three of these patients derived no benefit from suprarenal therapy, the two others were temporarily relieved. In five patients the adrenals were enlarged and caseous with little or no fibroid change. Of these, three derived no benefit, two were temporarily benefited. Two patients, in whom both suprarenals were tuberculous, derived no benefit.

This analysis suggests to Adams that those cases "most likely to derive benefit from specific treatment are those in which the process is a chronic sclerosing one and where the other organs are fairly sound." He does not accept in its entirety Shoemaker's supposition that cases "in which organotherapy is useful are probably those in which a portion of the gland or glands is functionally potent," since in some cases the glands have been found absent, in others reduced to fibrous tissue and yet material benefit has been conferred by the administration of suprarenal extract in one form or another. In those cases in which no benefit accrues from this form of treatment he urges that we should respect the burden under which the method labors when tried on moribund patients, or over too short a period. On the other hand, he would not lose sight of the large number of failures which are never reported. He refers, also, to the apparent recovery of patients long before suprarenal treatment was ever suggested, and to the natural tendency of the disease alternately to remit and exacerbate.

The case I wish to place on record is that of L. Y., white, aged fifty-five years, Hungarian,

musician, married. Family and personal history negative.

*Present Illness.*—The patient is unable to speak English, and no satisfactory account of his condition can be obtained from him. His wife, however, states that for five months he has complained of pains in the hands and feet, knees, ankles and shoulders, with swelling and loss of function in these parts, and that latterly he has lost greatly in strength and weight. She is not able to fix any definite date for the appearance of the cutaneous pigmentation. Upon admission to the hospital the patient presented, in addition to the more strictly objective symptoms to be outlined below, practically all the subjective manifestations of Addison's disease. Asthenia and emaciation were pronounced. When not constipated he was incontinent of feces. Incontinence of urine was also present. During the three first weeks of his stay in the hospital he suffered from diarrhea. The appetite was indifferent. Vomiting did not occur except toward the close when, within twelve hours, on three occasions, he vomited large quantities of brownish material. The blood examination revealed 2,690,000 erythrocytes and 4,800 leucocytes, 70 per cent. hemoglobin. The urine was of low specific gravity and contained a few hyaline casts but no albumin. The systolic blood pressure, measured by Cook's modification of the Riva-Rocci sphygmomanometer, registered 100 mm. of mercury in the left arm and 140 mm. in the right. It will be observed that at autopsy no change was observed that would account for this difference, which was likewise apparent to the palpating finger. No sputum could be obtained for examination.

The nervous symptoms were rather vague. The patient's mentality pointed to mild dementia—a condition not unknown in Addison's disease. Coarse volitional tremor in the arms was quite noticeable. Percussion beneath the clavicles revealed an excellent response to the pectoro-humeral reflex recently described by Mills, of Philadelphia.

*Physical Examination.*—The patient is an elderly male, profoundly emaciated. For the greater part he is quiet, bordering on listlessness, but at times, particularly when disturbed, becomes noisy and demonstrative. The legs are strongly flexed on the thighs and the thighs on the abdomen, the forearms are flexed on the arms and the arms held close to the chest and toward the chin. Voluntary movements in these extremities are limited, forced movements painful. The patient tends always to assume the lateral posture.

*Skin.*—The skin of the entire body is of a deep brown color. Around the neck, at the waistband, around all the joints of both hands, at the wrists and around all the toes this pigmentation is exaggerated. The penis and scrotum are streaked by bands of blackish pigment deposit, the intervals being white, almost leucodermatos, so that the whole is not unlike the appearance of the leopard's skin. The palms display spots of deep brown pigment. The soles are only faintly dis-

colored. The region of the sacrum and coccyx is involved in diffuse brown pigment deposits, while just above the left posterior superior spine is an area of brownish-black pigmentation the size of a silver dollar. The arms and legs are more deeply pigmented on the anterior than on the posterior surface. The scalp is faintly discolored. The skin in front and behind the shoulders, on the anterior abdominal wall, on the lower part of the back and on the anterior surface of the thighs is dry and finely scaly. On the lower part of the anterior abdominal wall and in the pubic region pigment is deposited in the form of small mole-like spots which are almost black in color. In both flanks, more particularly the left, leucoderma is present. The patch on the left side approaches the shape of an oblong and is three inches in length and an inch in width.

*Mucous Membranes.*—Conjunctivæ clear. The mucous membrane of the lips and of the buccal cavity exhibits both large and small areas of deep brown pigmentation. On the left border of the tongue and, in lesser degree, on the anterior and posterior surfaces is a large oblong patch of brownish-black discoloration. The mucous membrane of the glans penis is also streaked with black.

*Lungs.*—Both apices exhibit impaired resonance on percussion. Although the respiratory excursions are shallow auscultation reveals bronchovesicular respiration beneath both clavicles. At the right apex anteriorly a few fine crackling râles are audible.

*Heart.*—Apex beat neither visible nor palpable. On auscultation the heart sounds in the region of the normal apex beat are barely to be heard, while at the base no heart sounds are distinguishable.

*Liver.*—Liver dulness extends about two fingers' breadth below the costal slope.

*Spleen.*—Not palpable.

*Pulse.*—Right radial pulse more full than left. Pulses synchronous and 90 to the minute. Artery rather hard. Capillary pulse perceptible beneath nails.

*Glands.*—Superficial lymphatic glands universally enlarged.

*Extremities.*—Wrists, knees and ankles swollen, hot to the touch, painful on manipulation. No pretibial edema apparent.

*Treatment.*—On admission the patient was placed in bed and put under treatment for the joint symptoms. When the diagnosis of Addison's disease was made he was ordered ten minims of a 1-1,000 solution of adrenalin chloride three times a day. This was administered hypodermically. After thirteen days the dose was changed to 15 minims of a 1-5,000 solution. This was continued over a period of five days, when he was ordered extract of suprarenal gland in six-grain doses three times a day, or the equivalent of 18 grains daily. This amount was administered for thirty-five days and then increased to 27 grains daily. After seven days this was increased to 36 grains daily, continued at this rate for

twenty-seven days and increased to 45 grains daily and continued at this rate for eleven days. Then the solid extract was discontinued altogether and ten minims of a 1-1,000 solution of adrenalin chloride given hypodermically three times a day for a period of forty-five days, when the patient died with symptoms of pulmonary edema. Thus the patient was under specific treatment for a period of 143 days. At no time was any improvement noticeable.

*Autopsy Report.*—(Autopsy performed and notes kindly furnished by Dr. Horst Oertel, pathologist to the New York City Hospital). Body about 167 centimeters in height, of delicate frame, very poor musculature, great emaciation. The bones of the face are prominent, rigor mortis in upper extremities is not very marked, but there is very extreme stiffness of knee-joints, so that it is almost impossible to straighten them out. The skin of the entire body is smooth, thin and displays diffuse dark brown discoloration. In some portions there are patches varying in size which are darker than the remainder of the skin, especially in the region of the scrotum and on the abdomen. The same discoloration in patches is found in the mucous membranes, especially that of the tongue, where it is almost black. Upon section there is practically no subcutaneous fat, muscle tissue brownish pale, very dry and atrophic. The abdominal cavity contains no fluid, the serosa of the intestines is pale and shiny, the diaphragm is at the fifth interspace on the left, and the fourth on the right side. The peritoneal sac is thin and contains a small amount of blood-tinged fluid. The heart is small, the right side moderately distended and the left side moderately contracted. On opening the right side there is a little fluid blood in the ventricle, and the auriculoventricular opening readily admits three fingers. The left side is empty, and the auriculoventricular opening admits two fingers. The pulmonary valve is delicate and the curtains are fenestrated. The aortic valves exhibit a good deal of thickening at the base, and very pronounced atheromatous degeneration of the aorta exists with the formation of large calcareous patches. The mitral valve is moderately thickened and contracted, the corda tendinæ slightly thickened and shortened. The papillary muscles are pale, thick and short. The coronary vessels are slightly atheromatous, small and very tortuous. The heart muscle is atrophic, firm and brownish pale. The pleural cavity on the left side is empty and shows old and extensive but not very firm adhesions. The left lung shows adhesions between the lobes and is emphysematous. At the apex is an old scar, at the base a few old tubercles. The right lung shows a few adhesions at the apex and a few old tubercles. The lung is emphysematous and edematous. The spleen is bound down by firm adhesions, is slightly enlarged, the surface is steel blue in color, the organ is firm and there is considerable perisplenitis. On section the color is brownish-pale, the trabeculae are distinct and the Malpighian corpuscles prominent.

*Left Suprarenal.*—The left suprarenal gland is bound down by firm adhesions to the left side of the spinal column and is irregular and nodular. On removal it cuts with moderate difficulty, and is seen to be transformed into a large cheesy mass, so that very little tissue is to be made out. As a whole the gland is enlarged.

*Right Suprarenal.*—As a whole the right suprarenal is enlarged and is bound down in the same way as its fellow. On removal it seems to be harder than the left, smaller in size and not so nodular. On section it appears harder and shows distinct cheesy nodules, but more preserved apparently normal tissue. The cortical portion is distinctly pigmented.

*Left Kidney.*—There is practically no perinephric fat, the size of the kidney is not markedly changed, the consistency is firm, the capsule strips easily, the surface is slightly lobulated, the color is mottled and shows distinct yellow patches. On section the cortex appears thin and irregular, the markings are very distinct, especially at the junction of cortex and medulla, the medullary rays prominent, the medullary portion pale, the vessels firm and thick.

*Right Kidney.*—The right kidney is slightly smaller than the left. Its consistency is hard. There is a solitary tubercle in the cortex. Otherwise it resembles the left.

The stomach is small, the walls thickened. The organ contains a little greenish, bile-stained fluid. The mucous membrane near the cardiac end is atrophic and shows loss of the rugae, but near the pylorus it is distinctly thickened and the rugae are marked. The whole surface of the mucous membrane is covered by a thick, white, slimy material, beneath which a number of ecchymotic spots appear. The walls of the intestines are very thin and the mucous membrane is atrophic. The mesenteric glands are not involved. The bronchial glands are large and deep black in color, but show no tuberculous involvement. The liver is moderately enlarged and shows a moderate degree of perihepatitis in patches, the color is mottled, surface smooth and the consistency diminished. On section the central veins appear prominently as deep red spots, the lobules around them are pale and swollen and their outlines indistinct. The pancreas is small, pale and very hard. On section it is seen to be distinctly cirrhotic.

*The Brain.*—Dura thickened. Calcareous deposits in the falx. The pia is thickened, especially along the frontal lobes. The arteries at the base show patches of advanced endarteritis. The lateral and third ventricles contain a considerable amount of clear colorless fluid. The left corpus striatum contains a few small areas of cystic softening.

*Anatomical Diagnosis.*—Chronic endocarditis of aortic and mitral valves, advanced atheroma of aorta, brown atrophy of the heart; emphysema and edema of lungs, with few old small tubercles; chronic atrophic splenitis; chronic pleurisy; tuberculosis of suprarenal glands; chronic diffuse nephritis; chronic venous congestion of liver with

marked fatty infiltration; chronic gastritis; chronic enteritis; cystic softening in left corpus striatum, endarteritis obliterans; chronic interstitial pancreatitis; general brown atrophy of skin.

In conclusion, I wish to thank Dr. T. C. Jane-way, in whose service at the New York Hospital this patient was observed, for his permission to place the case on record.

#### THE GASTRO-INTESTINAL CRISIS OF ERYTHEMA EXUDATIVUM; SIMULATING APPENDICITIS.

BY A. M. POND, M.D.,  
OF WEBSTER CITY, IOWA.

OSLER defines exudative erythema as a "disease of unknown etiology, with polymorphic skin lesions—hyperemia, edema and hemorrhage—arthritis occasionally, and a variable number of visceral manifestations, of which the most important are the gastro-intestinal crises, endocarditis, pericarditis, acute nephritis and hemorrhage from the mucous membranes."

It is with especial reference to the gastro-intestinal crisis above mentioned that the present paper will have to deal, for its interest to surgeons, because of the marked similarity in some instances to appendicitis.

The condition may present no evidence of any skin lesions; again, it may precede the gastro-intestinal symptoms, and yet again may not appear for several days after the abdominal discomfort. Quite obviously when the skin eruption precedes the attacks of colic with rises of temperature and pulse, the temptation will not be great to operate for a supposed disturbance of the abdominal contents; but where the eruption does not occur at all, or in cases where its appearance is delayed for several days following the attacks of abdominal pain, and where the temperature and pulse are high and the vomiting continuous, the condition is perplexing.

These gastro-intestinal crises seem to be a very important and quite a constant symptom. In a series of 29 cases reported by Osler the gastro-intestinal symptoms were noted in 25 cases, or 86.2 per cent., and in one instance (*Case XX*) a diagnosis of appendicitis was made and the patient admitted to the surgical service of the hospital, even after the rash had appeared.

Below I report a case in which the eruption did not appear until several days after the intestinal symptoms had become grave:

Ethel B., aged nine years, poorly nourished, anemic. Father, farmer; gives history of severe attack of rheumatism, no heart lesion, and at present no joint symptom; no evidence of kidney disease. Mother died of hemorrhagic pancreatitis in May, 1903; had four children; one died at four months, imperfect closure of the foramen ovale; a brother of mother died of intestinal perforation during typhoid in July, 1902; mother's father died of pneumonia in March, 1902; mother's mother has had rheumatism for many years, no heart lesion, nor evidence of nephritis. Has attacks of

skin eruption, erythematous in nature, more frequent during winter months.

January 15, 1904. Complained of headache upon retiring; was given 15 c.c. of castor oil.

January 16. Bowels moved three or four times; began vomiting about noon; complained of severe pain about umbilical region at 2 P.M. Temperature 103° F. 5 P.M., temperature, 103.5° F.; 8 P.M., temperature, 102° F.; father had used hot applications, which seemed to increase the symptoms.

January 17, at 4 P.M. saw the case. Temperature, 104° F.; pulse, 120; moaning and groaning; listless, anxious facial expression; vomited six times since noon. Pain was located a little below and to the right of umbilicus; pressure increased pain materially, and a distinct spasm of the wall of abdominal rectus could be felt; no pain in left groin, pressure tolerated. Ice-bag was ordered over right groin, and pancreatin and soda bicarb. each .0324 gm. ordered p. r. n. for nausea and vomiting. All food by mouth discontinued; liq. peptone by rectum, three hours.

January 18, 9 A.M. Temperature, 98.6° F.; pulse, 110; slept poorly, but complains of no pain, playing with doll; tongue very red and furrowed, gums spongy and bleeding easily. Blood count, hemoglobin 80 per cent.; red cells, 4,136,000; white cells, 10,680. Advised removal to Mercy Hospital, Webster City.

The following record is taken from the history sheet of hospital:

January 19, 12 M., admitted. Temperature, 101° F.; pulse, 100. Pain severe. Ice applied over right groin. 1 P.M., fed per rectum. 2 P.M., sleeping; 4 P.M., moaning in sleep; fed per rectum. 8 P.M., temperature, 101° F.; pulse, 100; respiration, 20. 11 P.M., moans and cries in sleep; restless.

January 20, 3 A.M. Temperature, 100.6° F.; pulse, 100. 8 A.M., temperature, 100° F.; pulse, 89. 11.30 A.M., temperature, 99.6° F.; pulse, 88. 1.30 P.M., temperature, 99.6° F.; pulse, 88; patient very comfortable. 8 P.M., temperature, 100° F.; pulse, 86; respiration, 24; urine, 178 cc.; pain very severe. 10 P.M., temperature, 99.8° F.; pulse, 90; respiration, 16; moaning and crying.

January 21, 2.30 A.M. Temperature, 99.2° F.; pulse, 104; respiration, 16; pain very severe. 3 A.M., expelled gas freely. 5 A.M., temperature, 99° F.; pulse, 96; respiration, 16. 8 A.M., red blotches on face and hands; temperature, 99.5° F.; pulse, 88. Skin eruption was first evident on the right side of face, and consisted of large bright red wheals; the color did not disappear on pressure. 12 M., temperature, 99.4° F.; pulse, 88; pain very severe. 3 P.M., sleeping, but very nervous. 5.25 P.M., rash over entire face, extending down to the neck, chest and arms; several small punctate eruptions capped with a vesical, some containing clear fluid, others substance looking very much like pus; pain very severe; urinated 475 cc. Examination of urine: Color, dark straw; turbid; acid reaction; specific gravity, 1.018; chlorides, 12 per cent.; phosphates, 8.5;

sulphates, 3.5; albumin, 2.5; urea, 1.5. Number of slides examined, 2; fine granular and bloody casts; blood cells; amorphous urates; calcium oxalate crystals. 8 P.M., pain very severe; expelled some gas. Spr. aetheris nit., .92 cc. ordered.

January 22, 3 A.M. Temperature, 98.6° F.; pulse, 90; respiration, 20. 10 A.M., temperature, 99.2° F.; pulse, 88; eruption symmetrically arranged in large wheals over surface of both thighs, an occasional punctate eruption capped with white vesicles, no edema of ankles, no joint pains. Heart apex about fifth interspace, about 7 cm. midsternum, no murmurs; eyes puffy; hydrg. chlor. mitis. 0.0130 gm. ordered every half hour for five doses. 3 P.M., urinated 10 ounces, no pain; examination essentially same as before. 10 P.M., large, free bowel movement, clay color, nor formed, containing blood and mucus; no pain.

January 23, 10 A.M. Child appears listless, indifferent, rash disappearing; pustules forming in right hand; abdomen not tender; tongue red but smooth; gums normal; no puffiness of eyes; urine, 150 c.c.; cloudy, with distinct reddish cast; temperature, 98.6° F.; pulse, 70; soft diet ordered, with soln. pept. ferri et mangan, 4 cm. t.i.d., after meals.

January 26, 2 P.M. Temperature, 98.6° F.; pulse, 76; discharged from hospital.

When this case first came under observation, with temperature of 104° F., pulse of 120, recurrent vomiting, and spasm of rectus abdominal muscle, I at once thought of appendicitis, and this was further confirmed by the blood examination, which showed a slight leucocytosis of 10,680, and had the acute symptoms not subsided by the withdrawal of food by mouth and the application of ice to the right groin, I most certainly should have operated the case at once. But since the child had been sick for forty-eight hours before I had seen her, I thought it wise to pursue means to abate the condition, and after a return to normal temperature and pulse and a cessation of pain, to do a late operation.

After the appearance of the eruption, which, as the record shows, occurred coincidentally with the subsidence of pain and lowered temperature and pulse, etc., the condition was most perplexing. Then with the suppression of urine and the consequential findings in the urine that was passed, of blood, casts and albumin, served to clear the condition somewhat.

It is interesting to note the family history in connection with this case, there being a history of rheumatism, with its allied complications, in three generations. Osler reports one case in which he was able to follow these conditions in five generations.

After the child began to recover, and after a return to normal temperature, pulse rate and cessation of pain, I again examined the abdomen. I could not quite bring myself to believe that there was not some serious pathological condition in the abdomen that was responsible for the grave symptoms that had occurred; the child was thin, and

the abdominal walls lax, so that examination was very easy, and the findings reasonably certain.

With the child lying on her back, and the left hand lifting the right loin and making deep digital pressure over the right lower quadrant, no mass could be detected, no point of tenderness encountered, and no swollen or sensitive appendix perceptible, although I am quite sure I could feel it slipping beneath the fingers of my right hand while making a rubbing motion toward the ilium at deep pressure.

Osler accounts for these gastro-intestinal crises as being "probably due to localized edema of the gastro-intestinal walls," and classed these cases with those of angioneurotic edema in which colic occurs as so prominent and constant a feature.

In casting about over the voluminous literature that has recently appeared concerning appendicitis in all of its phases, it is surprising that so little mention is made of these symptoms which are so similar. No one has evidently described the pathology, if he has been unfortunate enough to operate these cases, or else there is a striking similarity of pathology in the cases that appear without any skin manifestations, and are beyond peradventure appendicitis, and those cases in which preceding the operation, or shortly after it, the erythematous condition is manifest.

Many queries concerning this case suggest themselves:

1. Was the skin manifestation in this case similar to the well-known skin complication occasionally found in cholelithiasis?
2. Could it be due to metabolic disturbance similar to the conditions met with in individuals who are susceptible to certain articles of diet, such as shellfish, certain fruits, etc.?
3. Could it be a manifestation of the bacteria concerned in appendix inflammation, especially the *Bacilli coli communis*?
4. Was the abdominal symptom concomitant with the skin lesion as a prominent and constant feature or vice versa?

In discussing the first query, it will be remembered that the erythema co-incident with cholelithiasis is accompanied with intolerable itching and more or less marked gastro-intestinal disturbance, and is commonly of the discrete wheal formation, non-elevated, and disappearing upon pressure. There may or may not be jaundice; if the biliary passages are obstructed, either by mucous membrane inflammation sufficient to occlude the lumen of the duct, or by the presence of a gall-stone of such size as to be unable to pass the duct, jaundice may be present, and, after its subsidence, cause the itching, which, in turn, may be followed by the wheals. The erythema due to some idiosyncrasy regarding the eating of fruit, obviously occurs during the season when such fruit is in abundance, and becomes a portion of the diet. A history of such idiosyncrasy can as a rule be readily obtained, and the condition can be cleared up. The eruption occurs in a fine erythematous rash arranged in patches, and is accompanied by itching.

3. It is hardly reasonable to suppose that such a polymorphous erythema would be produced by bacterial invasion without more clinical manifestations than were noted in the above case. The common bacteria emit a specific toxin peculiar to them, and this toxin has in turn a specific action on the physical economy. Were there but one, or even two distinct types of skin eruption, this might be accounted for by the bacterial cause of some infection, but where the lesions were so varied and numerous it can hardly be considered pertinent.

4. In reviewing the records of this case, and noting the comments made upon this condition by other observers, I am persuaded that the abdominal crisis is a frequent and prominent feature of these cases, of which so little of the pathology is now known. The fact that in some of these cases the gastro-intestinal crises are absent, but present all the polymorphic skin lesions, would argue rather against the assumption that the skin lesion was in any way due to pathology of the abdominal contents, or from any disturbance of the process of metabolism consequential to the pathological process.

From the foregoing it will be readily observed that increased caution will be called for in arriving at a diagnosis in the cases presenting the acute characteristic paroxysms of colic, attended by vomiting, rapid pulse, a tender abdomen, perhaps presenting a tumor, with either a spasm of the abdominal recti muscles, or, in the later stages, a condition of abdominal rigidity.

Typical as these symptoms may appear, to indicate an involvement of the appendix or other abdominal viscera, operative measures should not, I think, be too hurriedly undertaken, without first a careful study of the family history, with the view of discovering skin, joint or kidney lesions in other members of the family, supplementing this with a blood examination and determining the relationship between the red and the white cells, and lastly a thorough examination of the urine, together with an exposure of the surface of the body in search of polymorphic skin lesions.

There are other conditions that may be found that will serve somewhat to clear up matters, such as spongy condition of the gums, which bleed easily on touch perhaps, joint symptoms, areas of angioneurotic edema, with hyperesthesia. In the presence of any of these conditions an early operation is not to be recommended, unless the blood count shows, beyond peradventure, a rapidly increasing leucocytosis; and examinations should be made hourly and the increase be distinct before operation is undertaken.

**Bacteriology of Chromidrosis.**—R. TROMMSDORF (*Münch. med. Woch.*, July 19, 1904) was able to grow two specific bacteria from a case of chromidrosis, the one producing yellow and the other red pigment. The cause of blue perspiration is not yet settled, since some observers have discovered indigo, others ferrous phosphate in the secretion. It is likely, however, that bacteria also play a prominent part here.

## MEDICAL PROGRESS.

### SURGERY.

**Ulcer of the Stomach Due to Lesions in the Gastric Nerves.**—It has been claimed that injury to the external nerves of the stomach in animals has been followed by ulceration of the mucous membrane. VEDOVA stated that by causing an injury to the celiac ganglion or its thoracic roots in dogs he was able to produce ulceration of the wall of the stomach which resembled closely the lesion found in the human subject. Van Jizeren also claimed that cutting the vagus below the diaphragm in rabbits was followed by the formation of a chronic peptic ulcer of the stomach. M. DONATI (*Deut. Archiv f. klin. Chir.*, Vol. 73, No. 4) criticizes these views and submits the results of his own experiments in dogs and rabbits, where he resected the vagus below the diaphragm, extirpated the celiac plexus, or did both operations. These attempts were all attended by negative results, and in no instance was there any development or a gastric ulcer or similar lesion. In many animals there was noted an increase in the secretion of hydrochloric acid. The animals were kept under observation for six months. Donati concludes that a trophic origin for the round ulcer of the stomach cannot be conceived, and that this lesion is not due to any changes in the external nerve supply of that organ. He believes, however, that there is a possibility that the nervous system has a certain influence which may act as a predisposing factor, but the processes already outlined are not the only cause which produces an ulcer of the stomach.

**Micro-Organisms in the Small Intestine.**—It has already been shown that the mucous membrane of the trachea, the conjunctive and the urethra is free from germs under normal conditions, which may be accounted for by the supposition that the mucous membrane has bactericidal properties which destroy the penetrating organisms. I. JUNDEL (*Archiv f. klin. Chir.*, Vol. 73, No. 4) has now also examined the empty small intestine with reference to its bacterial contents, the material for investigation being taken from the gut during the operation for gastro-enterostomy (five cases). In one patient who had a carcinoma of the stomach, the cultures showed numerous bacteria; in two others they were practically sterile. In two cases of benign stenosis of the pylorus, only a few isolated colonies developed, and the contents could be considered sterile. It is evident, therefore, that the small intestine has the power to destroy, soon after it has been emptied, the germs which may be left-behind and to bring about a condition which may be designated as an autosterilization. The author asks that further observation be made to verify his statements and conclusions.

**The Question of Auto-Intoxication in Ileus.**—In order to aid in solving the important question as to whether death in ileus is due to intestinal intoxication or to reflex action, P. CLAIRMONT and E. RANZI (*Archiv f. klin. Chir.*, Vol. 73, No. 3) have carried on a large number of experiments on the toxicity of the intestinal contents. The material to be investigated was secured in large part from dogs, cats and rabbits. The ileus was produced by a circular ligature of the small intestine with a sterile cotton wick, such as is employed for temporary occlusion when doing intestinal anastomosis. Eighty-five animals were thus treated, but in only 81 per cent. were symptoms of ileus elicited. The intestinal contents from the animals and also from a few cases of intestinal obstruction in man, were filtered and injected into other experimental animals. The majority of the animals died, with typical symptoms—diminished respiration, dilated pupils, increased reflex irritability, tonic and clonic convulsions. The symptoms were independ-

ent of the species of animal or the manner of application of the experiments, but seemed to depend on the relation between the amount of the material administered and the weight of the animal. Filtrates of bouillon cultures grown under aerobic conditions all had an equal effect, whereas the filtrates of pure cultures and anaerobic cultures had no effect whatever. The toxic properties of the filtrates were not visibly affected by heating, and keeping them for a time caused them to lose their power spontaneously. A number of these filtrates manifested an hemolytic and cytolytic action (on epithelium) which varied in intensity. The addition of normal brain tissue inhibited the toxic properties of the filtrates, and it seems therefore that these substances form a close union with the central nervous system. Immunization experiments conducted in animals were not attended with any definite results. The authors conclude that in the intestinal contents of cases of intestinal obstruction, whether experimentally produced or otherwise, toxic substances of a bacterial nature are formed, which are absorbed by the system and produce a toxemia. They do not believe that the infection is exclusively with the *Bacillus coli*, as claimed by others. There are probably a number of poisons derived from various micro-organisms of the intestine, which affect the different organs, such as the brain, the heart, the kidneys.

**Foreign Body Imbedded in the Heart.**—A most unusual case is reported by M. KOCH (*Berl. klin. Woch.*, July 11, 1904), where at the autopsy examination in a man of seventy-six years, who died from inanition due to senility, an elongated steel was found imbedded in the wall of the left ventricle. The patient's history failed to give any clue as to the time of entrance, nor did it apparently cause any symptoms. The object proved to be a needle-like bit of steel about 3 cm. long. It was probably introduced suddenly from without at some remote period of the patient's life, and, strangely enough, never caused any discomfort, and was therefore not noticed.

**Pathology of Bullet Wounds of the Stomach.**—A case is reported by O. v. FRISCH (*Arch. f. klin. Chir.*, Vol. 73, No. 3), where a laparotomy was done after the patient had been shot in the abdomen. The bullet entered the stomach and the wound was readily found and sutured. The point of exit could not be located, although the X-ray examination had demonstrated that the projectile had traversed the stomach. The patient made a good recovery. The author then made a number of experiments on the stomachs of animals and found that the wound of exit in the serous coat of the stomach was usually a small slit which might easily be overlooked, in those cases where the force of the projectile had been mostly spent. The entrance wound is ordinarily the more extensive and affords the stomach contents an opportunity to find their way into the abdominal cavity. It seems feasible, therefore, not to prolong the search for any wound of exit unless signs of hemorrhage are present, when the wound of entrance is of no greater diameter than 7 to 8 mm., although gastric contents may have been evacuated into the general peritoneal cavity. The abdominal incision may then be closed without danger.

#### MEDICINE.

**Hemalysin Caused by Cancer Extract.**—In order to explain the marked deterioration of the blood seen in patients suffering from malignant tumors, D. KULLMANN (*Zeitsch. f. klin. Med.*, Vol. 53) prepared an extract of carcinoma cells and mixed it with freshly-drawn red cells. In every case the cells were rapidly disclosed. Further researches showed that the hemolytic substance

is firmly combined in the cells themselves for an unfiltered extract has a stronger action than a filtered one. It is not specific for homologous blood, but dissolves the blood-cells of many species. Furthermore, it is resistant against boiling, is soluble in alcohol and water and not identical with the autolytic ferment of carcinoma or normal organs. After injecting the maceration intraperitoneally another hemolytic substance forms in the animal body, which seems to have a much more complex composition.

**Peculiar Course of Cancer of Stomach.**—The patient of G. HONIGMANN (*Zeitsch. f. klin. Med.*, Vol. 53) had suffered for years from nervous hyperacidity and had improved considerably under treatment. After an attack of indigestion he developed a severe gastric and intestinal catarrh, which also yielded, except that a moderate degree of atony and supersecretion remained behind. The course was satisfactory and the patient even gained weight, until the entire aspect of the case changed without apparent cause. After a slight gastric hemorrhage, the muscular activity of the stomach ceased completely, the hyperacidity was suddenly replaced by anacidity and attacks of tetany made their appearance. The patient's condition became so serious that an operation was performed, disclosing a pyloric cancer with many miliary metastases in the mesentery. After a gastro-enterostomy the attacks disappeared and the patient enjoyed comparative comfort for eight to ten weeks, but after that the course was steadily downward. The sudden change of the patient's condition after the hemorrhage, the author thinks, was due to perforation of a blood vessel by the growth, thus converting the local disease into a general one. The cause of anacidity in carcinoma is not yet understood and some believe that the alkaline secretion from the ulcerated growth neutralizes the acid. It is, however, more likely that the general intoxication is responsible since the same anacidity is noticed with cancer elsewhere. There is likewise a discrepancy of opinions concerning the cause of tetany, some ascribing it to inspissation of the blood, others to reflex influences or to auto-intoxication, but in this case it was probably due to an inundation of the system with cancer toxins, especially since it has already been proven that the latter may have a specific action upon the nervous system.

**Influence of Exercise, etc., on Nephritis.**—If patients suffering from chronic interstitial nephritis are placed into a warm or carbonated bath, both blood-pressure and amount of albumin will sink. After the bath, the albumin will often rise, with horizontal posture and fall with exercise. Rest in bed has the same influence as baths, but to a less marked degree, and arterio-dilatars, such as amyl nitrite and nitroglycerin, also reduce the albumin, together with the pressure. The beneficial influence of exercise, especially of climbing mountains, without fatigue, is especially emphasized by C. EDEL (*Zeitsch. f. klin. Med.*, Vol. 53). The albumin reaches a very low percentage, even though the pressure rises, since increased heart-action accompanies the general dilatation of the vessels. This form of exercise is therefore highly recommended in Bright's disease especially, since it also stimulates the respiration and diminishes the amount of urine.

**Diagnosis and Treatment of Azoospermia.**—A number of methods have been proposed for determining the presence of living spermatozoa in cases where more or less obliteration of the seminal passages has taken place as the result of a gonorrhea. C. POSNER and J. COHEN (*Deutsch. med. Woch.*, July 14, 1904) comment on the failure of most of these suggestions when practically applied. Fürbringer has proposed to lay open the tes-

ticile and then to examine the contents. As this is rather an extreme procedure, the writers suggest attaining the same ends by puncture of the testis by means of a hypodermic syringe. There is no pain, an anæsthetic is unnecessary and the patients are not confined to bed. When the material obtained is found to be made up of fatty cells and detritus, and spermatozoa are absent, it is of no use to attempt anything more. Where the latter are present, it still remains a question as to what to do. In six cases reported by the authors, the cut end of the vas deferens was implanted directly into the opened canals of the head of the epididymis, or an anastomosis was made by carefully approximating and suturing the edges of openings made in the walls of the vas and the epididymis. In none of these cases, however, were any positive results obtained thus far. The most important thing in this condition is to institute early prophylactic measures, by watching for the development of an epididymitis after the acute gonorrhea has subsided. If present, massage, the application of iodine and other remedies should at once be instituted. It is also essential that frequent examinations of the spermatic fluid should also be made in order to determine its character.

**An Instance of Transitory Diabetes.**—An interesting case history is presented by E. MANN (*Berl. klin. Woch.*, July 25, 1904). The patient, a man of forty-five years, had been afflicted with a diabetes insipidus, which within a few weeks became converted into a diabetes mellitus, with considerable excretion of sugar. This also disappeared completely within sixteen days under a diet of oatmeal, as recommended by Van Orden. The patient died, however, shortly afterward from a carcinoma of the stomach, in which the pancreas was involved.

**Dermatitis Coccidioides.**—This disease has been considered identical with blastomycosis. D. W. MONTGOMERY and H. MORROW (*Jour. Cut. Dis.*, August, 1904) have called attention to points of difference between the two. The organism causing coccidioides has a double cycle of growth, one seen in the tissues, the other on culture media, the two having no features in common. Such cycles have not been noted in blastomycetes. On agar culture media the aerial hyphae of the *Coccidioides* organisms are no high and fuzzy; in cultures of *Blastomyces* they frequently are. The growth of the *Coccidioides* organism on agar is sharply circumscribed; that of the *Blastomyces* is not. The micro-organism of *Coccidioides* grows faster and liquefies gelatine more readily than that of the *Blastomyces*. The fungi of each seem to be fatal to the same kind of animals, but inoculation of guinea-pigs with the *Coccidioides* organism tends to cause caseous degeneration of the testicles, a fact never observed in the case of the *Blastomyces*. The fungus of *Blastomyces* multiplies by budding; that of *Coccidioides* does not, the sole mode of reproduction of the latter being by means of an endogenous spore formation. Additional characteristic points of *Coccidioides* as against *Blastomyces* are that the capsulated bodies in the tissues are comparatively large and usually circular; the infection tends to become generalized; the prognosis is bad; the administration of iodide of potassium has no control over the disease.

**Eczematoid Eruption of the Lip.**—A peculiar eruption about the region of the lips is described by H. W. STELWAGON (*Jour. Cut. Dis.*, August, 1904) as usually beginning on the vermillion border of the lips, showing at first a superficial eczematous condition, with scanty exfoliation, no liquid exudate has been seen, burning and heat may be complained of, but seldom any troublesome itching. This condition tends to retrogress sooner

or later to present again. After some weeks or months the disease extends to the skin, frequently at the same time spreading inward over the mucous membrane. The upper lip is always much less affected than the lower; in some instances the tongue has become likewise affected. Contiguous to the affected area on the lip or slightly beyond, one or more small reddish, flattened or rounded persistent lesions appear, which later exhibit scaling, sometimes crusting, but no exudation. The disease is of a benign character, never showing any destructive action. Anti-syphilitic treatment tends to aggravate rather than improve the condition. The most satisfactory treatment of the cutaneous lesion is sulphur 20-50 gr. to the ounce of Lassar's paste, or painting with 10-50 per cent. alcoholic solution of resorcin.

#### HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

**Peritonitis after Phlegmon of Arm.**—That peritonitis may develop through a retrograde transport of germs from the arm by way of the lymphatic system is clear from the two cases published by M. LOHLEIN (*Virchow's Archiv*, Vol. 177, No. 2). Streptococci had gained access to the subcutaneous cellular tissue of the left arm, and had then traveled to the gland of the axilla. From here the upper end of the thoracic duct was invaded and the opening into the subclavian vein obstructed by a thrombus, so that the germs found a ready opportunity to travel backward into the peritoneum. Both patients had developed indefinite pains in the abdomen a short time after their injury, and soon the typical picture of peritonitis appeared. Septic infection of the thoracic duct is more common with infection of the uterus, but here the germs travel with the lymph-stream, not against it.

**Recent Investigations in Hay Fever.**—A discussion of recent experimental work on hay fever is made by R. A. GLEGG (*Jour. of Hyg.*, July 9, 1904). The researches were conducted by Prof. Dunbar, which show that there is in reality but one exciting cause for hay fever, this being the pollen of grasses and of certain other plants. He found that these pollens could artificially excite attacks of hay fever when applied to the conjunctive or nasal mucous membranes of persons predisposed to the disease, and this even outside of the hay-fever period. Dunbar succeeded in isolating the peculiar poison in the toxic pollen, and found it to be an albuminous substance, so toxic that even .000025 milligrams of the protein body, consisting of this active albumin and also of inert globulin, could excite irritation in the conjunctiva of a predisposed patient. This amount of toxin would be contained in two or three pollen grains. Large doses produced very severe attacks, and toxin injected subcutaneously produced most unpleasant, and indeed dangerous, symptoms in two hay-fever patients. This toxin is absolutely without any effect on normal persons. By injecting pollen toxin into animals Dunbar succeeded in obtaining an antitoxin, which neutralized the toxin in vitro and cut short attacks of hay fever artificially produced by the toxin. Furthermore, the antitoxin cut short attacks of the natural disease. Owing to the peculiar nature of the disease and the constant reinfection of the mucous membranes by pollen on exposure to the outside air, Dunbar has found it to be necessary to use the serum prophylactically, to sleep with the windows closed, apply serum in the morning before rising, both to eyes and nose, and again during the day on the appearance of the slightest irritation in the conjunctiva or nasal mucous membrane. By this means he has succeeded, and others have also been successful, in acquiring freedom from attacks.

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SATURDAY, SEPTEMBER 10, 1904.

EDDYISM AND MAGNETIC HEALING.

THE recent exposé of Eddyism, showing that it had its origin not even in a supposedly divine revelation, but developed in a very matter of fact manner from a system of magnetic healing invented by one Dr. Quimby, of Maine, should receive more than passing attention from physicians. We are indebted to the enterprise of the New York *Times* for putting into popular language with further evidence the extensive study of Woodbridge Riley in the "Personal Sources of Christian Science," *Psychological Review*, November, 1903.

According to this well-authenticated story, it is easy to trace the gradual evolution of an ordinary magnetomental system of therapeutics into modern Christian Science, with its presumptuous claim to definite divine revelation. The investigation also throws no little light on the career of Mrs. Eddy herself. According to her disciples, in 1866 she fell on an icy sidewalk and hurt herself. The official Eddy version is that this led to the discovery of Christian Science. Her Bible opened to the account of the healing of the palsied man. She immediately saw the truth, and recovered without the aid of medicine. The physician who attended her, Dr. A. M. Cushing, now of Spring-

field, Mass., gives a different version. He says he found her nervous, semi-hysterical, and considered it necessary to give her quieting medicine rather frequently. At subsequent visits she complained so much of discomfort that he found it necessary to give her morphine. During her visits to him she occasionally spoke of Dr. Quimby, of Portland, Maine, and stated that he had wonderful success in treating her.

Documents are furnished in the late exposure which show that many of Mrs. Eddy's expressions with regard to science and health are copied directly from the pamphlet of Dr. Quimby. Some of this author's manuscripts are shown in facsimile with corrections and interlineations in Mrs. Eddy's own handwriting, which serve to bring out very clearly certain steps in the evolution of Quimby's magnetic healing into Eddyistic Christian Science. At first, indeed, Mrs. Eddy, according to competent witnesses still alive, gave due credit to Dr. Quimby. Only later, when success began to come to her, when she realized the possibilities of such a declaration, did she insist that her new doctrines were a direct personal revelation to her from on high.

This claim becomes doubly absurd in the light of the disclosures. Its refutation is written by Mrs. Eddy herself. Such familiar Eddyistic expressions as "The patient's disease is in his belief," "Error is sickness, truth is health," are directly traceable to Dr. Quimby's writings. With very slight modifications they are to be found even in recent editions of Mrs. Eddy's book. Occasionally there are modifications such as "Error is matter" (Quimby), "Matter is mortal error" (Eddy), "Matter has no intelligence" (Quimby), "The fundamental error of mortal man is the belief that matter is intelligent" (Eddy). As Riley puts it, however, "it is needless to go into the muddy question of plagiarism. There is no real issue between the Eddyite and the Quimbyite, because the head of each school drew their philosophic trickle from a common source. One of the chief ex-Christian Scientists himself grants that there was a near approach to the theory and practice of Dr. Quimby in the contemporary investigation of John Bovee Dods, who believed that electricity was the connecting link between mind and matter, that disease originated in the electricity of the nerves and can be cured by a change of mind." "It was from the vaporings of itinerant magnetizers that Mrs. Eddy sucked in her primary notions." "The quacks were drawing full houses in New England at

the very time she was on her pilgrimage for health." Hence the true history of "Mental Science" is to be traced, not to the original Quimby, but to the indiscriminate practice of mesmerism along in the forties and fifties, and to the crude attempts of Yankee philosophers to explain the borderland phenomena of hypnoidal states.

#### ATHLETICS AND ARTERIOSCLEROSIS.

We are just entering upon the period of the year when, with the opening of the universities, a very large number of young men in this country settle down to the hardest kind of athletic training for the various sports. It seems not inopportune then to review for a moment certain recent expressions of medical opinion with regard to the immediate and remote effects of the severer forms of athletics upon the general health, exercise, and especially those sequelæ that may influence length of life. Not a few of those who took part in the very interesting discussion on arteriosclerosis at the last meeting of the American Medical Association insisted on the fact that the violent forms of athletic exercises most in vogue at universities at the present time are likely to be sources of early arterial degeneration with consequent early loss of vigor and curtailment of life.

As far back almost as medical history runs, it has been conceded that the most harmful factor in breaking down health and in shortening life was severe labor during the period of adolescence and bodily development. This would include especially the years between fifteen and twenty-three, when, after puberty, the body is gradually reaching its acme of development. It is considered almost a truism to say that strenuous physical labor at this time, if carried on to the fullest limit of capacity, is sure to lower resistive vitality and hinder proper development. There are not many who would hesitate to say that to compel growing boys between fifteen and twenty to strain themselves lifting heavy weights, which they are just able to carry, or to work so hard that they sometimes faint because their hearts refuse to send a sufficient amount of blood to the brain, is actually criminal. In what the compulsion to labor so hard differs from athletic exercises which call for just as much exertion and produce as serious effects upon the individual is hard to understand. It is this point particularly that a number of good clinical authorities at Atlantic City insisted on, and suggested that the faculties of our universities should be made to realize.

"A man is as old as his arteries" is a popular truism that remains quite as true for the physician as for the general public. The etiology of premature degeneration of arteries is well-summed up in the expression of the distinguished American clinician who says that it occurs especially in the devotees of the three pagan deities, Vulcan, Venus and Bacchus, that is, it occurs in those who work too hard, in those who suffer from venereal disease rather than from excesses in venery, and in those who indulge too much in spirituous liquors. The relative etiological importance of the causative agents at work is expressed by the order in which they are mentioned above.

There is no single factor in the production of precocious senility due to degeneration of arteries so effective as hard physical labor. The series of statistics presented at the recent meeting of the American Medical Association with regard to the development of arteriosclerosis under forty-five years of age brought out this fact very forcibly. It is no wonder then that there should be agreement among physicians as to the utter inadvisability and almost inevitable harmfulness of the severe physical strain of certain phases of modern athletics.

There is another important element also likely to be harmful in its tendency to which attention was not directly called, although certain of those who took part in the discussion did insist on the necessity for careful dieting and especially on the avoidance of excesses in animal foods, if arteries are to be kept in their normal elastic condition. There is no doubt that an excessive nitrogenous diet adds its quota of irritation to nerves and arteries and leads to unfortunate consequences. The strain put upon the kidneys by such a form of diet is much more severe than with the ordinary mixed diet containing a larger proportion of carbohydrates, which is so much more suitable for the adolescent period. There are forms of heart and kidney disease that consequently develop in association with arterial degeneration, and it has never as yet been decided just in which set of organs the pathological condition is primary.

There would seem to be no doubt then that those who apparently are in the best position to judge are agreed that our modern athletics are sure to do much harm unless more carefully regulated. Under these circumstances it might be expected that university faculties would take cognizance of these conclusions and insist on limitation of present day customs with regard to the

severe forms of athletics and the training for them.

#### THE MENINGES IN THE ACUTE INFECTIONS OF THE RESPIRATORY SYSTEM IN CHILDREN.

DURING the progress of pneumonia or bronchopneumonia children frequently suffer from generalized convulsions. These convulsions may often be mistaken for meningitis, and they enter into the picture described by Dupré under the name of meningism, which this authority attributed to a true meningeal reaction without any anatomic lesions.

The clinical and experimental researches of Dr. Roger Voisin, presented in his recent thesis (Paris, 1904), throw a new light on the obscure question of meningism. Clinically, all degrees of meningeal phenomena of bronchopneumonia are met with, such as convulsions, stiffness of the neck, Kernig's sign, even the classical picture of acute meningitis—nothing is wanting.

This variability of the clinical signs is also met with in the conditions presented by the cerebrospinal liquid. Obtained by lumbar puncture the cerebrospinal fluid shows a normal condition, or, on the other hand, there may be slight changes of the albumin, or the amount of sodium chloride present, while in some cases it is purulent.

The meninges themselves present divers lesions, and every condition may be observed from the normal state to congestion, serious edema, or even the inflammatory changes of acute meningitis. One might be led to believe that with these lesions of meningitis and purulent condition of the spinal fluid that a patient would present a complete clinical picture of meningitis with violent convulsions, etc. But this is not the case, because a slight lesion may give rise to an imposing array of head symptoms while, on the other hand, a child with bronchopneumonia may die and the autopsy will show advanced lesions of meningitis, although no symptoms of the affection manifested itself during life.

The pyramidal cell of the cortex consequently presents a peculiar and different reaction according to the case. The variability of the clinical picture is only the expression of the special susceptibility of the hereditary or morbid origin of the nervous centers. They react against the blood infection in bronchopneumonia or the intoxication as Voisin has demonstrated experimentally. All degrees of infection or intoxication of the nervous centers are met with in bronchopneumonia, just as one sees all the various degrees of renal lesions in pneumonia.

The alcoholic subject reacts against the alcoholic intoxication by his liver, kidneys, stomach or brain; in other words, the organs which by heredity is the weak point. It is the same with bronchopneumonia, and the apparition of the meningeal syndrome is favored by nervous heredity.

The prognosis varies according to the anatomic type, but should the meningeal symptoms persist in spite of tepid baths, and if the restlessness is not interrupted by periods of calm with sleep, one should be on guard, because a serious meningeal lesion may be developing.

#### ECHOES AND NEWS.

##### NEW YORK.

**Bequest to Eye and Ear Hospital.**—Dr. William H. Crawford, who died August 28, at 205 West Fifty-seventh Street, left \$10,000 to the New Amsterdam Eye and Ear Hospital.

**Health Department Funds.**—The Health Department has sent to the Board of Estimate its estimate for 1905. According to the figures, the department will need \$2,123,500, as against \$1,109,391.48 allowed for this year. When the allowances by bond issues and other income are deducted the increase asked is reduced to \$577,656.52. The estimate says the increase is due mainly to the hospital fund and salaries increase.

**New Hospital for Brooklyn.**—For the purpose of instituting and maintaining a charitable hospital in the neighborhood of Fifteenth Street and Fourth Avenue, Brooklyn, the Brooklyn Samaritan Hospital Association has been organized. It will be incorporated, and the work of raising funds will be begun soon. This movement is the outcome of the dispensary work that has been carried on under the auspices of the Fifteenth Street Baptist Church. The proposed institution, however, will be non-sectarian, patterned somewhat after the Samaritan Hospital, in Philadelphia.

**Diphtheria in the Bronx.**—Diphtheria has been prevalent in West Chester and Throgg's Neck for the last week, and has given the health officials much worry in view of the opening of the public schools. Most of the physicians in the neighborhood of West Chester have had cases and a strenuous effort is being made by the local superintendent of the department to stamp out the disease.

**Interpreter for Bellevue.**—Ermenegildo Zordan, a Professor in the University of Padua, who speaks English, German, Italian, Spanish, Polish, Yiddish, and modern Greek as well as he does French, his native tongue, has been appointed official interpreter at Bellevue Hospital, an office that the institution has needed for many years. Professor Zordan, who is on a two years' leave absence from the University of Padua, Superintendent Richard says, is without doubt one of the most talented linguists who ever came to America.

**Smallpox on Steamship.**—The steamer *Campania* was held at quarantine several hours because of a case of smallpox on board. The victim, a woman steerage passenger, was transferred to a shore hospital, and twenty-five of the steerage passengers were sent to Hoffman Island for observation. The steamer was released after she had been disinfected by the health authorities.

**Analysis of Foodstuffs in New York.**—Under the direction of the Department of Agriculture, a chemical

laboratory for the analysis of imported food products has been opened in the Appraiser's Stores building in Greenwich Street, in this city. All necessary apparatus to detect impurities was installed on the tenth floor of the building during the day, and hereafter importers will not be subjected to the delay of having samples sent to Washington for analysis before they can obtain their goods. This laboratory will be the third of its kind in the United States, as there is already one in San Francisco, besides the Department headquarters in Washington. Dr. H. W. Wiley, chief of the Bureau of Chemistry of the department, was in this city to superintend the installation. L. M. Tolman had also come from Washington for the preliminary work. R. E. Doolittle, formerly State Chemist of Michigan, will have charge of the work here, and will be assisted by Alfred W. Ogden and B. R. White.

#### PHILADELPHIA.

**Typhoid Again Increasing.**—Typhoid fever cases for August numbered 454 as against 257 in July. The present increase is attributed largely to a broken sewer which discharged for nearly a week into the Schuylkill a short distance above a pumping station.

**Mont Alto Sanatorium.**—Encouraging reports come from White Pine Camp Sanatorium, near Mont Alto, established by the State for the treatment of consumptives. All the patients in camp are said to be improving and a number have been completely cured. A large area of ground has been laid out in garden plots and in caring for these the patients take their prescribed exercise.

**Serum Treatment for Tuberculosis.**—A consignment of the Maragliano serum for use in combating tuberculosis has arrived from Europe and is to be employed by the Phipps Institute. Directions for its use have been sent by Drs. Ravenel and Pearson who have been investigating its properties during the past summer.

**Basis of the Weightman Fortune.**—The recent death of William Weightman, head of the firm of Powers & Weightman, drug manufacturers, has again revived the story of how a large part of the immense fortune of the firm was derived from the sale of quinine during the Civil War. At that time there were only two concerns in this country making quinine from Peruvian bark—Powers & Weightman and Rosengarten & Sons, both Philadelphia firms. The regular price of the drug at the beginning of the war was \$2.10 per ounce. Heavy war duties as well as the general effect of the war sent the price up and the two firms made money rapidly, although the government purchased great quantities of the drug abroad. Neither firm sold quinine directly to the Confederates, though it reached them by way of traders who ostensibly bought it for other uses. These men also reaped a rich profit, for the drug south of Mason and Dixon's line often sold for as high as \$15 an ounce; the Philadelphia firms, though having a monopoly of the product, never sold it for exorbitant prices.

**The Copper Treatment of Drinking Water.**—Interest in this subject still runs high in this city, no doubt because of the condition of the water supply and the imminence of another typhoid outbreak. The Philadelphia *Ledger* of Monday prints a two-column interview with Dr. George T. Moore, in charge of the laboratory of plant physiology in the Department of Agriculture, Washington. In the course of the interview Dr. Moore made this statement: "I am perfectly willing that the *Public Ledger* should say for me, since it asks for a broad, free, unqualified statement, that the death rate in Philadelphia or any other community, from typhoid fever, so far as the disease is caused by infected drink-

ing water, may be wiped out by the scientific use of copper as a germicide." The laboratory experiments in this city, inspired by the announcement of Dr. Moore some time since, are stated by Director Martin as not ready for publication. His statements, as recently published, were rebutted by several well-known chemists of the city and in endeavoring to sift the matter the *Ledger* obtained the interview now made public. Dr. Moore's statements more than confirm those of Dr. Martin, although no official correspondence has passed between the two. The findings of the Agricultural Department grew out of experiments made to destroy algae in reservoirs of drinking water. The germicidal properties of copper as announced are based on laboratory experiments as no public water supply has been treated for bacterial contamination. This is beyond the pale of its duties. Moore considers the popular prejudice against copper vessels because of fear of poisoning as absolutely unwarranted; he was surprised by the adverse opinions of the Philadelphia chemists who opposed the views of Dr. Martin. He explains them only by the supposition that they are chemists only and not bacteriologists, biologists, physiologists or students of pathogenic growths. What is popularly called verdigris is carbonate of copper formed by the action of carbonic acid on the metal and is, for all the purposes of popular argument, not soluble in water. Verdigris proper is an acetate or acid product and would not form under such conditions. Further experiments are to be conducted by the Department, and it is not unlikely that they may look to the practical application of the treatment to large bodies of water.

#### CHICAGO.

**Hospital for Oak Park.**—Fifty Oak Park residents, among them a number of physicians, recently met and discussed plans for a proposed hospital. All agreed to support the project. After several speeches a committee of ten was appointed to arrange for a larger meeting to further the plan.

**Opening Exercises of Dearborn Medical College.**—The Dearborn Medical College opened its new home at Michigan Avenue and Twelfth Street in the building formerly occupied by the Chicago Manual Training School, August 30. The assembly hall was decorated with flags, ferns and flowers, and was filled with students and friends. Dr. L. Blake Baldwin, president of the college, introduced Dr. George F. Butler, superintendent of the Alma Springs (Mich.) Sanitarium, and Dr. Homer M. Thomas, of Chicago, who delivered addresses. The faculty has expended \$10,000 in remodeling and furnishing the building, and the school begins with an enrollment of two hundred students. This is the second year of this night medical college, which began last season in the Illinois Pharmacy Building with 135 students.

**New Hospital for Englewood.**—The Swedish-American Hospital Association of Englewood was recently given a charter at Springfield. Capital stock is \$100,000, all of which must be subscribed before work on the building is begun. The hospital will be in Englewood, but the site has not been chosen.

**State of Chicago's Health.**—The *Bulletin* of the Health Department for the week ended August 27, contains the following gratifying report: "If that nation is to be accounted happy that has no history, why not the city whose healthfulness furnishes little or nothing of the material of which history is mostly made—death, disease and disaster, pestilence, plague and woes unnumbered? With two-thirds the usually sickly summer season already passed, the August death rate is as low as the rates of the healthful June and November, the

two months of least mortality in the twelve. Even with an increase of thirty-five more deaths reported over the number of the previous week the total 472 is 114 less than for the corresponding week of last year and the rate per 1,000 of population is more than 16 per cent. lower than the rate of that week. One of the most gratifying features, next to the continued low mortality among infants and children, is the infrequency of typhoid fever. This disease always shows a seasonal increase, beginning in July and culminating in October. The increase has averaged for thirty years more than 63 per cent. in August over the rate of the first six months of the year, which would make the typhoid deaths for this month about 47. During the last twenty-seven days there have been but 26 deaths from typhoid fever reported and a total for the month is not likely to be more than 31 or 32. In August, 1903, there were 51 deaths from typhoid fever. A similar, but not so marked, reduction in the acute intestinal diseases—also due largely to impure water—is noted. Thus far during the month there have been 441 deaths due to this class of diseases. In the corresponding period of last year there were 505 such deaths; during the week there were 102 acute intestinal disease deaths and one year ago there were 142. Cool weather, pure water and the improved quality of milk supply are the principal factors producing these results."

**Fourth-of-July Lockjaw Record.**—A recent interesting article, which appears in the *Journal of the American Medical Association*, under date of September 3, the *Chicago Record-Herald* of same date contained the following editorial on "Fourth-of-July Tetanus": "If the use of pistols, cannon crackers, cannon and cartridge canes had been prohibited on the Fourth of July there would have been only one death from Fourth-of-July tetanus in the entire country this year. This statement is made on the authority of *The Journal of the American Medical Association*, which for two years has collected Fourth-of-July accident statistics in the most complete possible manner. As it was, 105 cases of tetanus were reported, in 91 of which death is known to have resulted. In 74 of these cases blank cartridges caused the injuries. The record, bad as it is, is nevertheless gratifying in comparison with that a year ago, when 415 tetanus cases resulted from the glorious celebration, among which were only seven known recoveries. *The Journal* finds that tetanus due to other causes than Fourth of July injuries is, if anything, more than usually common this summer. It also believes that last year's record of Fourth-of-July deaths was not above average for recent years. It therefore feels justified in inferring that the campaign against the lockjaw Fourth in the public and professional press, taken in connection with the stricter legislation and the more careful medical treatment of accidents which have been brought about by it, is responsible for the greatly improved showing of this year's celebration. It urges that the efforts for a sane Fourth which have been thus far made should be continued with even greater vigor until our national holiday will become again a pride, instead of a cause of disgrace, to the country. In Chicago, where the death list was reduced from the sixteen of 1903 to five, further action should clearly be taken. The first thing to be done is for the council to pass an ordinance prohibiting absolutely the sale of toy pistols and similar death machines, instead of merely prohibiting their sale to minors as at present. Beyond that, however, agitation should be begun for the passage by the state general assembly of a law prohibiting the manufacture of such articles. When the toy pistol, cannon cracker and the cartridge-cane are driven out of existence, plenty of varieties of fireworks will still

remain to give old and young all the noise and all the entertainment they can need on the year's day of greatest enthusiasm."

#### GENERAL

**Arrival of Professor Orth.**—Dr. J. Orth, professor of pathology and dean of the University of Berlin, arrived on the Zeeland Sept. 5, accompanied by his wife. Professor Orth, on the death of Professor Virchow, was called by the faculty of the University of Berlin from Göttingen to fill the vacancy. Professor Orth was, early in his career, one of Virchow's assistants. He was the chief physician in the operation recently performed on Emperor William's throat. Many of his pupils are now prominent American physicians. The professor will go to Albany, Buffalo, Niagara Falls, Chicago and St. Louis. He will be entertained at the White House by President Roosevelt on September 27, and dinners will be given for him in Baltimore by educators of Johns Hopkins and by a body of his former pupils, now in America.

**Smallpox in Connecticut.**—The second outbreak of smallpox in South Manchester within the last two years was discovered September 2, when three in one family were stricken.

**Tuberculosis Sanitarium at St. Louis.**—East St. Louis is to have a \$100,000 sanitarium for the cure of consumptives. A tract has been purchased as the site for the new enterprise. The company will be capitalized at \$200,000. Plans for the buildings are being drawn, and it is intended that the sanitarium shall be open to patients early in the spring.

**Hay-fever Epidemic.**—An extraordinary epidemic of hay-fever has developed in Buffalo and vicinity within the past two or three days. Several thousands of Buffalonians are sneezing, choking, and suffering from this enervating ailment; the attack was as sudden as it is sweeping.

**Panama Sanitation.**—A long step toward the sanitation of the Isthmus of Panama will be accomplished within six months by the installation of a complete system of waterworks for the city of Panama. The reservoir from which the city water supply will come is partly completed, a dam constructed along the line of the canal by the French company being utilized, and the lake formed thereby will contain a supply of pure water sufficient to furnish each inhabitant of the city with fifty gallons daily for five months, even if no rain falls in that period.

**Sanitary Work at Canal Zone.**—The sanitary officials at the canal zone have reported that quarantine stations have been placed at both ends of the canal route to prevent the spread of yellow fever and the plague, the latter generally coming from Chili and Peru. The most active methods for preventing the plague from breaking out are being employed. The methods are the same that are used in Havana. Sewers are being built and all water is being covered up as much as possible. Plumbing is being introduced, and a campaign is being conducted to teach the people to better their conditions. A large force of men is employed killing the mosquitoes, and gangs are filling up the swamps to keep the pests out of the country. To keep out the plague, an eight-day quarantine to vessels from infected ports has been established.

**Sanatoria for Tuberculous Poor in England.**—The great friendly societies of England, the trades unions and other organizations of workers, have formed a national committee which has for its purpose the establishing of sanatoria for workers. The municipalities are also being urged to provide beds for all persons of the working classes who need to be cared for, and it is estimated that an annual expenditure of \$5,000,000

would be quite sufficient for the isolation of all tuberculous patients. As one-eleventh of the total expenditure of \$60,000,000 annually for the public care of the poor of Great Britain is thought to be due to pauperism caused by this disease, the expenditure of this sum would not seem to be unreasonable if, by this means, the disease could be stamped out.

**Society to Study Alcohol and Narcotics.**—The American Society for the Study of Alcohol and Narcotics was formed last June by an amalgamation of the American Association for the Study of Inebriety and the Medical Temperance Association. Its plan of work is to encourage and promote more exact scientific studies of the nature and effects of alcohol in health and disease, particularly of its etiological, physiological, and therapeutic relations. Second, to secure more accurate investigations of the diseases associated or following from the use of alcohol and narcotics. Third, to correct the present empirical treatment of these diseases by secret drugs and so-called specifics, and to secure legislation prohibiting the sale of nostrums claiming to be absolute cures containing dangerous poisons. Fourth, to encourage special legislation for the care, control, and medical treatment of spirit and drug takers.

**Radio-active Wool.**—A new method of employing radium in medicine has been described by E. S. London, a Russian physician, which consists of using cotton-wool which has been submitted to the action of radium emanation. The result of a series of experiments seems to justify the conclusion that the effects of the radium emanation and of the direct action of the radium are the same, consisting in an inflammation of the skin and a destruction of protoplasm. Wool so treated, which is convenient for easy distribution over the body, when packed in hermetically sealed jars or other containing vessels, loses its radioactivity very slowly, and can be sent to any distance desired. From a few milligrams of radium a large quantity of wool may be prepared, and thus widely extend the use of a small amount of radium, whose cost is so great as to interfere with its widespread use. Radio-active wool, therefore, may become a stock pharmaceutical preparation, but it still remains for the medical profession to determine its therapeutic value.

**Breathing in High Altitudes.**—The difficulties of respiration at high altitudes has been believed to be due to the reduced tension of the atmospheric oxygen. Professor Mosso, an Italian scientist, has recently disproved this theory by showing that if the pressure of the mixture of oxygen and nitrogen making up ordinary air be reduced to one-third of an atmosphere, and then the proportion of oxygen be increased so that its partial pressure is the same as normal, the mixture is breathed with inconvenience, accompanied by an abnormal respiration and pulse. By taking supplies of pure oxygen and mixtures of gases to the summit of Monte Rosa and analyzing the blood it was shown, however, that a diminution in the amount of carbon dioxide in the air due to the low pressure was doubtless responsible for much of the trouble in respiration. Proof of this was afforded by breathing a mixture of 80 per cent. of oxygen and 20 per cent. of carbon dioxide on top of Monte Rosa, with a feeling of pleasure and ease, while the effect of the same mixture near the sea-level in Turin was to produce giddiness and vomiting. If this discovery is substantiated by further experiments it seems that by carrying cylinders containing this mixture of gases the highest mountain peaks can be scaled, while the mere provision of oxygen is of doubtful utility.

**Alcoholism in German Schools.**—An interesting investigation on the prevalence of alcoholism among school children in Germany has recently been published. Its

author, Dr. Goldfeld, believes that the situation is serious, and should be brought to the attention of the parents by means of addresses at meetings and by the distribution of essays on the evil effects of alcohol. The investigator is medical officer of the public schools of Schöneberg, a suburb of Berlin, and his examination included 967 children, 470 of whom were in a boys' school and 497 in a girls' school. Of these, 496, or 51.3 per cent., were accustomed to drink from one to two glasses of beer daily, while 299, or 30.9 per cent., took spirits more or less frequently. The favorite beverage was malt beer, but all kinds of beer and various kinds of spirits were taken, the sweeter liquors being preferred by the girls. Dr. Goldfeld was informed by the teachers that the children addicted to the use of spirits were especially lazy, absent-minded, and inclined to lying. Neither children nor parents heeded Dr. Goldfeld's warning. Of the 470 boys mentioned, 264, or 56.2 per cent., drank beer daily, and 139 were casual drinkers. One class was found in the school where practically the entire membership (96.2 per cent.) were accustomed to use alcohol in some form or other, while in another class there was only a third. The consumption of spirits by different classes varied from 17.7 to 60.4 per cent. With the girls the figures ranged somewhat lower, but still they are considered serious, and from the data presented there apparently is good opportunity for a scientific temperance propaganda in the German schools.

#### OBITUARY.

**Dr. E. G. SIMONS.** of Ripley, N. Y., was instantly killed by a Lake Shore freight train in Glenville, Ohio, on September 1.

**Dr. WILLIAM HAMMET MARTIN.** sixty-four years old, died at his home, No. 221 West 135th Street, New York city, on September 3 after an illness lasting several weeks, from cancer of the stomach. Born in Louisville, Ky., later a graduate of Columbia University and the College of Physicians and Surgeons, Dr. Martin for some years practised in Madison, N. J., and afterward in this city.

**Dr. MILLARD FILLMORE CYPHERS.** died at his home on Woodland Avenue, Philadelphia, August 29, aged forty-five years. He was born in Wilkesbarre, and after graduating at the University of Pennsylvania in 1887, practised for some years in his native city before coming to Philadelphia.

**Dr. HENRY TUCK.** vice-president of the New York Life Insurance Company, died September 2 at Seabright, N. J., after a long illness. Dr. Tuck was born in Barnstable, Mass., in May, 1842. After a preparatory training at the Boston Public Latin School he entered Harvard College, from which he was graduated in 1863. Soon after leaving Harvard, Dr. Tuck took a course in medicine at the Harvard Medical School and received his degree in 1867. He took part in the last campaign of the Civil War. He was appointed acting assistant surgeon in the army and was present at Lee's surrender at Appomattox. Later he went abroad to complete his study of medicine, the greater part of his time being spent in Vienna, where he studied at the General Hospital. Returning to this country in the latter part of 1868, he established a large and lucrative practice in Boston. After nine years in that city, in which time he acted as medical examiner for the Mutual Life and several other insurance companies, Dr. Tuck came to this city. In November, 1877, he was elected medical director of the New York Life Insurance Company. He became a trustee of the company in 1878, senior medical director in 1883, second vice-president in the same year, and senior vice-president on the election of Mr. Beers to the presidency in 1885. For twenty-seven years

Dr. Tuck had been a directing force at the home office, and in the board of trustees and as an executive officer he had given to the company the best service of a trained mind, a large experience and a whole-hearted devotion to its highest interests. Dr. Tuck was twice married. His first wife, whom he married in 1873, was Miss Emma R. Beers. After her death and in September of last year, he married Eleonore Hammond. While in Boston Dr. Tuck became a member of the principal medical societies of that city, and was one of the physicians of the Massachusetts General Hospital. He was a member of the University and Reform clubs, the Society of Mayflower Descendants and the New York Academy of Medicine.

DR. JOHN L. GORMLY, one of the rising young physicians in Brooklyn, died September 6, of heart trouble, at his home, Ocean Parkway and Avenue D, Brooklyn, N. Y. He was twenty-nine years old. He was on the visiting staff of St. Mary's Hospital.

### SPECIAL ARTICLE.

#### EXCURSIONS IN OLD NEW YORK MEDICINE.—V.

##### DR. DAVID HOSACK AND HIS BOTANICAL GARDEN.

DURING the present year the newspapers have frequently called attention to the fact that the property owned by Columbia University in the heart of the city (Fifth Avenue and larger Forties) is a legacy from the State to the institution, of Dr. David Hosack's Botanical Garden. To most New York physicians the name of Hosack is familiar because the main meeting hall at the Academy of Medicine is called after him. This distinction is due, partly at least, to a bequest to the Academy on the part of his widow. Dr. Hosack deserves, however, to be a familiar character to members of the medical profession in New York City and State for many other and better reasons than even his botanical garden or the family interest in the Academy of Medicine. There is perhaps no one person in the nineteenth century to whom New York medicine is more deeply or widely indebted than to this learned, faithful, generous, liberal man, of whom it might well be said, in the words of the old Roman dramatist, that "nothing that was human was foreign to him."

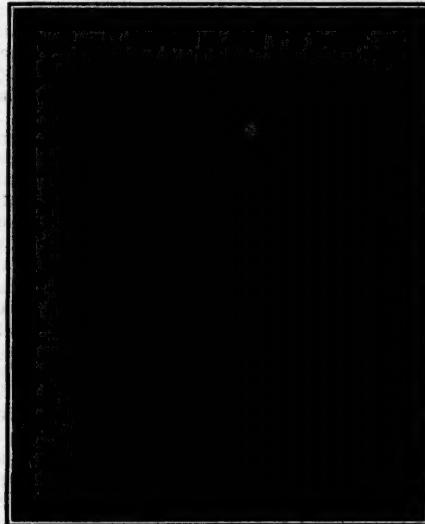
Dr. Hosack is one of the physicians, not many in number altogether, who have deservedly found a place in the volume, "Pioneers of Science in America," which was a reprint of the sketches of the lives and scientific work of the most prominent American scientists, edited and revised by the late Dr. William Jay Youmans, who had been for many years the editor of the *Popular Science Monthly*, in which the sketches originally appeared. The first paragraph in the sketch, written by Dr. Youmans, gives an excellent idea of Dr. Hosack's prominence as a man as well as a physician in New York City life:

"In the early part of the nineteenth century no citizen of New York was held in higher honor than was De Witt Clinton. Closely associated with Clinton in the leadership of the civic life of the day, but holding rigidly aloof from politics, was Dr. Hosack. 'It was not infrequently remarked by our citizens,' said his pupil and associate, John W. Francis, 'that Clinton, Hosack and Hobart were the tripod on which our city stood.' Dr. Hosack was one of the founders of the New York Historical Society and its president from 1820 to 1828. He was also instrumental in founding an art society, was prominent in various scientific, literary and humane undertakings, and, if his lead had been followed, New

York would have to-day a botanic garden equal to any in a European metropolis."

When Dr. Youmans wrote this, New York was without a botanical garden. Since then, thanks to the inspiring influence of Hosack's early work, this municipal defect has been made good, and we now have what even Dr. Hosack's biographers would pronounce "a botanic garden equal to any in a European metropolis," and we may even add, without undue conceit, far better than the great majority of the older cities may ever hope to have, since the energetic work of Dr. N. L. Britton is now bearing fruit.

Meantime we must not be blind to the wonderful pioneer work accomplished nearly a century ago. How extensive was Dr. Hosack's work and how ambitious his aim in having the botanical garden as complete as possible may be gathered from a paragraph from his son's biography. Hosack's idea was to make it an institution similar to the Jardin des Plantes in Paris. He meant to include all the features of that institution, even the zoological and mineralogical collections. In a word,



DR. DAVID HOSACK.

a hundred years ago he conceived the idea of giving New York a botanical garden and zoological garden besides a museum of natural history.

His son says: "At this time there were under cultivation nearly fifteen hundred species of American plants, besides a considerable number of rare and valuable exotics. To this collection additions were made from time to time from various parts of Europe, as well as from the East and West Indies. It was the intention of the founder of this beautiful garden, had his means been more ample, to devote it to the sciences generally, more especially those of zoology and mineralogy. This, however, he was compelled, from want of fortune, to relinquish, hoping that the State of New York would at some future day be induced to carry out the plan, as suggested by him, similar in all respects to that of the Garden of Plants in Paris; but in this he was disappointed. The State purchased the garden from him, but, like many other public works unconnected with politics, it was suffered to go to ruin. While it was in his possession it afforded him many a pleasant hour of

recreation, and served to abstract him from the cares and anxieties of an arduous profession. Frederick Pursh, author of the *Flora Septentrionalis*, was for several years curator of this garden."

In the midst of his scientific work, however, Hosack did not forget his duties toward his fellowmen, but, on the contrary, was constantly occupied with humanitarian progress. A society which had existed in New York up to his time for the purpose of visiting prisoners in jail, in order to be of help to them, if possible, and which actually accomplished the great good of supplying prisoners for debt with provisions, was developed under the stimulus of Hosack's enthusiasm into the Humane Society, whose aim was not only the relief of prisoners, but also of the poor in order to prevent the commission of crime, if possible, and even included some safeguard for animals against heartless cruelty. The City Dispensary, for the care and treatment of the ailing poor, received unstintingly of his time and attention. It was he who first advocated the necessity for a separate hospital building for contagious diseases. More than any other he contributed to the spread of popular knowledge with regard to the necessity for quarantine, and so made its institution practicable. Public sanitation was always a matter of deep interest to him, and it was he who first urged that the city's sewers should be made to discharge at the outer piers instead of the bulk-head line.

Notwithstanding his devotion to so many interests that must have made very serious demands upon his time, Dr. Hosack somehow found opportunity to make a large number of contributions to medical literature. When quite a young man he began the publication of *The Medical and Philosophical Register*, the quarterly journal, in the publication of which Dr. John W. Francis was associated with him. Later in life he published three volumes of medical essays containing articles contributed to various journals, occasional addresses before scientific bodies and medical societies, introductory lectures to his regular medical courses the College of Physicians and Surgeons, and the like. He edited an English work on the practice of medicine that had been written by Dr. Thomas, of Salisbury, England, and added an extensive appendix, making the work more practically useful for American physicians. Later on he also published a text-book on medicine of his own, which ran through several editions.

#### DR. HOSACK'S MEDICAL STUDIES.

In Dr. Hosack's career there are traces of the existence of a custom with regard to education which unfortunately does not continue to the present time, though it still obtains, to some extent at least, at the German universities. Instead of spending his senior year at Columbia, he spent it at Princeton. His idea was to have the advantage of being brought intimately in contact with certain scholarly professors at the college of New Jersey, whose work had attracted his attention. As he says himself:

"My great inducement for removing to Princeton was my desire to complete my course of collegiate studies as soon as possible, in order to devote my exclusive attention to medicine, to which I had now become ardently attached, and that I might also have the benefit of attending the valuable lectures on Moral Philosophy and Elocution delivered by the learned president of that college, the Rev. Dr. Witherspoon; those of Belles-Lettres and Composition, by the vice-president, the Rev. Dr. Samuel Stanhope Smith, and the instruction in mathematics and natural philosophy, by the celebrated mathematician, Dr. Walter Minto, all of which presented attractions which I could not resist."

Having finished his course at Princeton, he returned to New York and resumed his medical studies, where they had been interrupted shortly after the occurrence of the Doctors' Mob. He now had the advantage of being able to give them his undivided attention, and he has no little to say in praise of the medical opportunities which New York City at that time afforded. He did not consider, however, that he had exhausted medicine, merely because he had attended the lectures of New York professors, but knowing, by reputation, the distinguished professor of medicine in Philadelphia, he resolved to visit that city and take advantage of the stimulus that would be afforded by contact with other distinguished medical minds. In this we see once more that eclecticism which, as we have said, is no longer considered the proper method, though often occurring, in fact being almost the rule, in the German universities, and undoubtedly making for a breadth of knowledge and a development of critical faculty that cannot help but prove helpful in the after career. Dr. Hosack's own account in this matter seems worth while giving here because it shows the independent character of the man and the student only just entering upon manhood and his deep-seated desire for knowledge and the deep-seated desire for the opportunities of gaining it:

"I attended the lectures on Anatomy and Physiology, delivered by Dr. Wright Post; those on Chemistry and Practice of Physic, by Dr. Nicholas Romayne, and the valuable course on Midwifery and the Diseases of Women and Children, by Dr. Bard. I also attended the practice of physic and surgery at the almshouse, which then offered the only means of clinical instruction in this city; they were, however, very ample, the house being daily visited by Dr. Post, Dr. William Moore, Dr. Romayne and Dr. Benjamin Kissam. In the autumn of the year 1790, being desirous of obtaining all the advantages of instruction which the United States at that time afforded, I proceeded to Philadelphia, the medical school of which had already acquired great celebrity from the learning of its professors, especially Drs. Shippen, Rush, Kuhn, Wistar and Barton. At that time a division already existed among the Faculty, which led to the institution of a medical college as a rival school to that connected with the university, and not a little contributed to the benefit of both, and the ultimate advancement of the science of medicine in Philadelphia.

I entered as a regular pupil, and attended all the courses of lectures delivered during the winter in the university. I also attended those delivered on the Theory and Practice of Physics, by Dr. Rush, then a professor in the College of Philadelphia, as well as his clinical instructions in the Pennsylvania Hospital. In the summer of the succeeding year, after the usual private and public examination, I was admitted to the degree of Doctor of Medicine in the University of Pennsylvania, upon which occasion I duly defended an inaugural dissertation on cholera morbus, in which I endeavored to illustrate the doctrine of Dr. Kuhn on that subject, that an acid in the *prima via*, chiefly the effect of the use of aseptants, was the most usual proximate cause of that disease. Upon that subject my views have been materially changed since that period."

One experience of Dr. Hosack's medical student days, his part in the so-called Doctors' Mob, deserves to be recorded in particular because it shows the temper of the times. We venture to give two rather different descriptions of it because they demonstrated how differently a striking event may appeal to two otherwise sympathetic stories.

In his very interesting narrative of medicine in America, James Gregory Mumford, of the Harvard Medical

School,<sup>1</sup> gives the following picturesque account of what came afterward to be known as the Doctors' Mob:

"In New York medical teaching languished until 1813. Though there lived and practised in the city a number of first-rate men, their dissensions and jealousies for years prevented medical progress. The hospital made some history, however, and was launched anew after nine years of labor. In the interval between 1782 and 1791 the Society of the Hospital held annual meetings and elected officers, but the buildings were used for almost any purposes other than those for which they were erected. Sometimes poor folk were given the rooms as lodgings. One of the faculty (Bayley) gave some anatomical demonstrations there and did some operating, and for a few months the legislature sat in the hospital, but the most conspicuous event connected with the place during this dreary period was the once famous 'Doctors' Mob.' It was in the anatomical era, when students and doctors were making dissections there. There was hard feeling and suspicion about their finding bodies for the work—natural enough, as any one must admit who reads the old demonstrators' own statements of their modus operandi in procuring material. They seem to have rifled graves whenever they could, regardless of sex or condition, and most people conceived an 'ignorant prejudice' against having their mothers and sisters dissected by a parcel of callow students.

"The 'Doctors' Mob' made itself 'famous' on Sunday, April 13, 1788. While the dissecting was under way, a boy peeped in at the window, and some jocular individual who spied him from the room waved a dead arm at him, so the boy said. At any rate, he was duly impressed, and confided his experience to whomsoever would hear him, with the result that an angry crowd tried to take over the custody of the building and break up the anatomical course. The students and doctors thought it prudent to run away, and found sanctuary in the jail, with the mob after them. Then John Jay came upon the scene, exactly how or why does not appear, and peppery old Baron Steuben and Mayor James Duane, reading the riot act, backed by a handful of militia. The mob proceeded to hustle the dignitaries and knocked down Baron Steuben, who lost his temper and called out, 'Fire, Duane, fire!' The militia fired, seven rioters were killed, many were wounded, and the rest went home. That was the famous 'Doctors' Mob,' and the doctors got no sympathy. The governors denied their responsibility for the doings at the hospital, sent in a bill of twenty-two pounds seven shillings tenpence to the breathless doctors, and, after collecting the money, closed up the buildings.

"After that the governors seem to have come to their senses, and really determined to apply the hospital buildings to their original purposes. At any rate, within three years the reform had been accomplished, and in January, 1791, the hospital was again opened. Samuel Bard helped the starting and so did Malachi Treat."

That the "Doctors' Mob" was a much more serious affair for those who were voluntary or involuntary participants in it might be judged from this account, and will be readily realized by any one who reads the paragraph with regard to it in the memoir of Dr. David Hosack, published by his son, Alexander Eddy Hosack. At the time Dr. Hosack was pursuing his studies in the regular course at Columbia College. His son says:

"Finding his time not fully occupied in the commencement of the junior year, he resolved upon the study of medicine, and, accordingly, in May, 1788, entered as a private pupil with the late Dr. Richard Bayley, an eminent surgeon in New York. He had scarcely begun his studies before the celebrated 'Doctors' Mob' occurred,

which threatened serious results to those concerned; it arose in consequence of the imprudence of some of the students carelessly pursuing dissection in the building upon the site since occupied as the New York Hospital. This mob caused many of the professors to absent themselves from the city, and others to seek shelter in the city jail. Mr. Hosack, with the rest of the students interested, learning that the mob had seized upon and demolished the anatomical preparations found in the lecture-room above referred to, repaired immediately to Columbia College, with the view of saving such specimens as were to be found in that institution. Before reaching the college, however, and when on his way in Park Place, he was knocked down by a stone striking him on the head; he would in all probability, have been killed had it not been for the protection he received from a neighbor of his father, Mr. Mount, who was passing at the time, and took care of him. He never saw that gentleman afterward without feeling and expressing his gratitude to him for his kindness."

## SOCIETY PROCEEDINGS.

### ILLINOIS STATE MEDICAL SOCIETY.

*Fifty-fourth Annual Meeting, held at Bloomington, May 17, 18 and 19, 1904.*

The Society met in the Unitarian Church, under the presidency of Dr. Carl E. Black, of Jacksonville, Ill.

The scientific work was divided into two sections, medical and surgical.

Brief abstracts of many of the papers are herewith submitted.

**Contagiousness of Typhoid Fever and the Vitality of the Typhoid Germs.**—Dr. F. D. Rathburn, of Galesburg, read this paper. He spoke of the vitality of the typhoid bacillus in the living body, and discussed the length of time after convalescence when the patient is liable to communicate the disease by the excreta. He also pointed out the vitality of the germs outside the living body, and their power to generate in soils and other favorable media. He emphasized the importance of disposing of the excreta in order to prevent the spread of the disease. The germ has been shown to remain active for a considerable length of time after the fever in (1) posttyphoid abscess; (2) the urine; (3) contents of lung cavities; (4) gall-bladder, and (5) evacuations from the bowels. The proper disposition of the excreta is the only method of prevention. Cremation he considered the best method. When cremation is not practicable, he suggests that the excreta be deposited in heavily glazed earthenware receptacles, treated with germicides, and buried deeply at a distance from the water supply.

**Mental Disorders of Neurasthenia.**—Dr. Frank P. Norbury, of Jacksonville, said that the mental symptoms of this disease are of importance in every case. They vary from slight mental incapacity to pronounced state, "borderline" to insanity. The principal symptoms mentioned are introspection, imperative conceptions, morbid fears, irritability (marked by absence of symmetry), nagging, fault-finding, and excessive emotional outbreaks. The physical factors and differential diagnosis were discussed at length. The treatment consists of isolation, systematized rest, with adjuvants indicated in each case; also treatment of associated physical factors.

**Treatment of Appendicitis from a Pathological Standpoint.**—Dr. E. C. Franing, of Galesburg, pointed out the differences of opinion on the treatment from a clinical standpoint. He spoke of the

treatment of the various forms of the disease, paying particular attention to the Ochsner and operative treatments.

**Relation of Medicine to Surgery.**—Dr. James E. Coleman, of Canton, thinks that whereas in former days the surgeon was first and foremost a fine physician, now surgeons neglect medicine. He discussed some avoidable surgical affections of the ovaries.

**Leucemia; with Special Consideration of Its X-ray Treatment.**—Dr. Everett J. Brown, of Decatur, gave reasons for reporting and standpoints taken in regard to this disease. He gave the history of a case of splenomedullary leucemia having a leucocyte count of 800,000, with a greatly enlarged spleen, in which the use of the X-ray caused the disappearance of all symptoms. He considered the cases in literature so treated, and presented a summary.

**Polyneuritis.**—Dr. L. Harrison Mettler, of Chicago, stated that multiple neuritis is a much-abused term. The general conception of the disease and the text-book descriptions of it are far too narrow. It is a disease more or less of the entire nervous apparatus. He spoke of the central and peripheral types of the disease; of the relative significance of the interstitial and parenchymatous disease processes. He spoke of the relative importance of the particular etiological influences, and pointed out the clinical indications of the extensive nature of the disease. Pathological proofs were advanced. He referred to the differential diagnosis of types of the disease requiring variable treatment.

Dr. Thomas H. Bath, of Bloomington, read a paper in which he brought forward successive scientific data confirming the mosquito as the definite host of malarial fever.

Dr. James Moreau Brown, of Chicago, presented a general consideration of speech disorders, laying particular stress on etiology and treatment, and then discussed the so-called stammering institutes. He gave reasons why cases of this character should be cared for by the physician.

**The Pneumonia Problem.**—Dr. Arnold C. Klebs, of Chicago, spoke of investigations into statistical data regarding this disease, and its increase in the United States and abroad. He made a comparison of non-tuberculous respiratory diseases, and tuberculosis, both clinical and statistical. He pointed out the dangers of pneumonia to the individual and to the community, and how they can be met.

Dr. Charles J. Whalen, of Chicago, referred to the increasing prevalence of the disease, and gave a comparison of mortalities from pneumonia and tuberculosis. He pointed out the possibility of making headway against the disease from a prophylactic standpoint. The public should be educated as to the dangers of pneumonia. There is no known specific for it. Expectant treatment is the most satisfactory, and among other things he mentioned rest, ventilation, sponging, elimination, poultices and glycerin; also the value of antipyretics, serum therapy, venesection, arterial sedatives, oxygen, opium, creosote, normal salt solution, suprarenalin, stimulants, expectorants, etc.

**Brain and Sinus Diseases Resulting from Purulent Otitis Media.**—Dr. A. H. Andrews, of Chicago, said that brain and sinus complications are more common than is generally supposed. He stated that pus in the mastoid escapes in one of six directions. The intracranial complications may be general meningitis, extradural abscess, cerebral abscess, cerebellar abscess, and sinus disease. He expatiated at length upon the symptoms and treatment, followed by a report of cases.

**Joint Affections as Viewed by the Internist; Their Classifications and Brief Considerations.**—In this paper, Dr. August F. Lemke, of Chicago, pointed out the distinguishing features between the joint diseases known as the rheumatic arthritides, and the group known as arthritis deformans. He discussed the treatment of some of the more important joint lesions.

Dr. H. W. Chapman, of Whitehall, reported a case of mastoid operation which embraced some unusual features.

Dr. R. R. Campbell, of Chicago, considered the differential diagnosis between pseudomembranous angina of syphilis and angina of diphtheria. He pointed out the difficulties encountered, referred to the treatment, and the results.

Dr. Norval H. Pierce, of Chicago, reported additional cases of sigmoid sinus thrombosis from middle ear suppuration.

**Middle-Ear Suppuration.**—Dr. Willis O. Nance, of Chicago, in discussing this disease, stated that acute otitis media of infancy and early childhood was frequently an unrecognized process. The recent investigations of Ponfick, Barth, and others demonstrate that a large proportion of infants and young children at some time suffer from middle-ear inflammation. The dangers from non-recognition were pointed out; also the close relationship between acute purulent otitis media and acute infectious processes other than diphtheria and scarlet fever, namely, gastro-intestinal disturbances and bronchopneumonia. He mentioned the structural variations between the infant and adult middle ear, and the diverse characteristic manifestations of inflammation in each. Considerable attention was paid to the diagnosis and treatment of acute infantile otitis media.

**Ulcers of the Cornea.**—Dr. William H. Wilder, of Chicago, in speaking of infectious ulcers of the cornea, said that the underlying cause is to be sought in impaired vitality of the tissues from a general local depraved nutrition. The active cause is usually some trauma which is supplemented by a virulent infection. The source of the infection is frequently in the tear sac. He emphasized the importance of prompt recognition and active treatment. Cauterization of the ulcer plays a prominent rôle in the treatment, as well as constitutional measures.

**Cholecystitis.**—Dr. M. L. Harris, of Chicago, in discussing this affection, spoke of the influence of micro-organisms in its etiology. He referred to the great length of time microbes may remain active or retain their vitality in the gall-bladder. He pointed out the great frequency with which cholecystitis is mistaken for other conditions. He referred to the advantages and necessity of drainage of the gall tract in cases of cholecystitis, and the length of time drainage should be continued.

**Kidney Surgery.**—Dr. Arthur Dean Bevan, of Chicago, gave a brief historical review of this subject, and mentioned the pathological conditions warranting surgical interference. He likewise mentioned the means of diagnosis, and in discussing the surgical treatment, referred to nephorrhaphy, nephrotomy, nephrolithotomy, nephrectomy and plastics on the kidneys and ureters. Attention was directed to the prognosis after kidney operations.

**Some Interesting Cases of Subcutaneous Injuries of the Abdominal Wall and Viscera.**—Dr. D. N. Eisendrath, of Chicago, pointed out the necessity for a more general knowledge of the subject by the general practitioner as well as the surgeon, saying that many lives might be saved by prompt recognition of serious injuries of the abdominal viscera in which there is

only slight injury of the skin. He divided the abdominal organs into solid and hollow viscera. He alluded to the greater amount of protection of certain organs; discussed the manner in which injuries occur, and the mode of examination for the purpose of making a diagnosis. He reported a number of cases, analyzed statistics, and drew deductions from the same.

**Fissure in Ano.**—Dr. J. Rawson Pennington, of Chicago, discussed the office treatment of fissure in ano. He referred to the etiological factors and pointed out the more important symptoms of the affection. After speaking of the diagnosis, he considered the non-operative and operative treatment, and mentioned dissection of the external sphincter without the use of the ordinary general or local anesthetic.

Dr. S. C. Stremmel, of Macomb, read a paper in which he made a plea for early and interval operations in cases of appendicitis. He presented some interesting statistics.

**Pregnancy and Appendicitis.**—Dr. Charles B. Reed, of Chicago, spoke of the reciprocal influence existing between the inflamed appendix and the fruit sac, and of the disastrous consequences for the gestation and fetus. He detailed the mortality statistics of this condition as compared with other serious complications of pregnancy. The difficulties of diagnosis during pregnancy were emphasized. He spoke of the desirability of adopting a definite mode of procedure in these cases.

Dr. J. F. Percy, of Galesburg, reported a case of intestinal obstruction. He insists upon early operation, and outlined the best methods of treatment before consent for operation is obtained. He pointed out the wisdom of temporizing operative methods in a case of intestinal obstruction where exhaustion is extreme.

**X-ray Therapy.**—Dr. Charles D. Center, of Quincy, gave a review of the cases reported to the Society one year ago, with some additional notes used as illustrations. He pointed out the difficulty of telling before treatment whether benefit will follow the application of the X-rays or not. He reiterated that more is claimed for the rays therapeutically than is justified, saying that this claim arises from some apparently brilliant results which are not supported clinically by the lapse of time.

**Placenta Previa.**—Dr. Henry F. Lewis, of Chicago, discussed some practical points in the diagnosis and treatment of placenta previa.

**Antenatal Pathology.**—Dr. Charles F. Paddock, of Chicago, in a paper on antenatal pathology, stated that there is a fetal pathology which has for its etiology ceratin factors which could have been prevented. Every case of pregnancy should be considered as an abnormal condition, requiring the advice and attention of a physician. A neglect to do this often means injury to the fetus. The fetus suffers from a hereditary taint, notwithstanding the possibility of such a condition being known by the physician and one or both of the parents. The author under treatment discussed the preventive and curative measures.

Dr. Carl Wagner, of Chicago, under the head of "Porro Operation," described a modification which consists in reversing the course of the operation. He described a method of controlling hemorrhage; pointed out the indications for the operation, and reported three cases, with recoveries.

**Sympyseotomy in Persistent Mentoposterior Face Presentation.**—Dr. E. B. Montgomery, of Quincy, read a paper on this subject and reported a case. The author was unable to find very much literature regarding the use of symphyseotomy in such cases, although all the textbooks on obstetrics express them-

selves favorable to its performance. He gave an abstract of the report of seven such cases made by Pinard, in 1902, and detailed an account of his own case, which was successful as regards the mother, although the child perished from asphyxia shortly after birth.

Dr. Palmer Findley, of Chicago, spoke of the value of systematic blood examinations in gynecology; while Dr. Albert Goldsphohn, of Chicago, pointed out the reasons why digital exploration through the internal inguinal rings should be made in conjunction with every Alexander operation.

Dr. Geo. W. Newton, of Chicago, spoke on cystic tumors of the ovary. He discussed the histogenesis, etiology, symptoms, and emphasized the importance of early and correct diagnosis by the citation of illustrative cases. He likewise spoke of the accidents to and changes in ovarian cysts.

Dr. Charles B. Horrell, of Galesburg, described a rather unique case of imperforate hymen in a fairly rugged, rather athletic girl of sixteen years. She was a bicycle rider, etc., and was healthy, one in whom naturally an imperforate hymen would not be suspected, but the patient suddenly exhibited an abdominal tumor the size of a six months' gravid uterus. Examination revealed imperforate hymen, and an incision released about two quarts of grumous black blood, with perfect relief. He said that although this condition is rare, it may occasionally be found.

Dr. E. Wyllys Andrews, of Chicago, exhibited a phantom or model for illustrating herniotomy and suture work on the abdominal parietes. He emphasized the importance of suturing abdominal wounds layer by layer, and pointed out the difficulty of showing all steps of the closure to large audiences. Students get inadequate notions of the real care necessary. Herniotomy can hardly be shown to more than eight or ten observers. He spoke of the value of cloth in layers to imitate abdominal fascia. The parts are almost perfectly reproduced in large size. The author's radical cure for hernia was demonstrated.

**Immediate Abdominal Section.**—Dr. Denslow Lewis, of Chicago, in a paper with this title, said that the opinion is concurred in that increased facilities for surgical work and the multiplicity of hospitals in country districts often induced practitioners to undertake important abdominal operations without proper qualification or adequate experience. It is conceded that the usual postgraduate instruction may be a means of advertisement for the instructor rather than an honest attempt to teach the student-practitioner the details of operative technic. It is also admitted that many of those in attendance for a few weeks at post-graduate schools only too often seek a superficial knowledge of recent advances, and a respite from their everyday work, and but few are actuated by a sincere desire to add to their actual surgical capability. Nevertheless, it is urged that under certain conditions abdominal section must be undertaken by the practitioner in charge, for without such intervention the patient's life is jeopardized and in some instances the result is inevitably fatal. The principles of asepsis are simple and easily applied anywhere. The author cited cases from his recent experience in ectopic gestation, appendicitis, obstruction of the bowels, and other conditions where the demonstration has been made that immediate operation alone can save life.

Dr. J. N. Stealy, of Freeport, discussed the use and abuse of drainage. The purposes of drainage were set forth, also the indications and advantages, as against the disadvantages and bad results of drainage. The author believes that in the present day the inclination is for less drainage.

**Tuberculosis.**—In the section on Practice of Medicine, there was a splendid symposium presented on tuberculosis. Dr. George W. Webster, of Chicago, spoke of the mortality of the disease in Illinois for the years 1902 and 1903. Dr. Charles L. Mix, of Chicago, pointed out the factors causing tuberculosis, and aiding its spread. He offered suggestions for its prevention. Dr. Frank Billings, of Chicago, discussed the diagnosis of pulmonary tuberculosis; Dr. Robert B. Preble, of Chicago, the treatment. Dr. Homer M. Thomas, of Chicago, followed with a paper in which he pointed out the annual economic loss to the State of Illinois from this disease. Dr. Harold N. Moyer, of Chicago, discussed the duty of the State in restricting tuberculosis.

In the Section on Surgery there were symposia on eclampsia and carcinoma.

The following officers were elected for the ensuing year: President, Dr. Wm. E. Quine, Chicago; Vice-Presidents, Dr. H. C. Mitchell, Carbondale, and Dr. J. F. Percy, Galesburg; Secretary, Dr. E. W. Weis, Ottawa; Treasurer, Dr. Everett J. Brown, Decatur.

Rock Island was selected as the place for holding the next annual meeting.

#### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, held at the New York Academy of Medicine, June 13, 1904.*

The Vice-President, R. E. Van Gieson, M.D., in the Chair.

**Clinical and Other Features of the Present Epidemic of Cerebrospinal Meningitis.**—The first paper of the evening was read by Dr. Henry W. Berg, on this subject. At all times, he said, the disease is endemic in New York, the average number of deaths from it being, for Manhattan and the Bronx, in late winter and spring, 25 per month and at other seasons sometimes as low as 10 per month. The Health Department reports show that the present epidemic is much more severe than that of 1893, the number of deaths in the boroughs just named having amounted to 306 in the month of May. The disease is now gradually declining. The proportion of fatal cases among older children and adults is very much greater in this than in any other epidemic the statistics of which Dr. Berg has seen. In this, as well as in all other recorded epidemics in this country, a very large increase in the deaths from pneumonia, occurring at the same period, has been observed. This fact is of extreme interest from an etiological standpoint. As is well known, the bacteriological cause of epidemic cerebrospinal meningitis is the *Diplococcus intracellularis meningitidis*, isolated by A. Weichselbaum; and yet, in a publication in 1887, even Weichselbaum conceded that a proportion of the cases of this disease are due bacteriologically to the *Diplococcus pneumoniae*, the most frequent etiological factor in idiopathic cerebrospinal meningitis also. Whether the Weichselbaum meningococcus is the exclusive cause of all epidemics of cerebrospinal meningitis appears to be still unproven. One of the earliest of Dr. Berg's cases in the present epidemic was one of lobar pneumonia complicated by or complicating cerebrospinal fever. Resolution of the pneumonia occurred after six days, but the cerebrospinal symptoms continued, and the patient, a girl of eighteen years, died at the end of four weeks.

In the epidemic of 1893 and in Councilman's report of the Boston epidemic he could find no history of more than one case in one family, but in the present epidemic in a number of instances he has had two cases in the

same family, and in one family there have been as many as three cases. While these cases seem to point to the contagious character of the disease, we know but little of the method of the contagion. It is quite generally conceded that the germ probably enters through the nasal passages and is spread by the lymphatics to the dura and subarachnoid spaces. It is possible, also, that it is carried by the capillaries to the site of the lesion in the brain and spinal cord, although a general infection of the blood (septicemia) does not occur, nor, according to Councilman, has the organism been found in cultures taken from the blood. The meningococcus, however, has been found of feeble growth, and Dr. Berg does not believe this disease to be as contagious, directly or indirectly, as typhoid is, through the stools, or even as pneumonia, through the sputum. The lesion is primarily located in the membranes of the brain and cord, and the involvement of the spinal membranes is much greater and more general than in any other form of meningitis. Along the base of the skull the infection extends to the cranial nerves and the fifth nerve ganglia; it also extends into the spinal nerve roots and spinal nerves, giving rise to symptoms dependent upon inflammation and degenerative changes. Inflammation of the lungs, bronchi, tonsils and middle ear are met with as the result of direct invasion by extension from the nasal cavity and cerebral meninges. The diplococcus can be found wherever the infection extends.

**Several Classes of the Epidemic.**—In this epidemic the cases he has seen can be divided into three classes: (1) Chronic cases (the most frequent), beginning with acute symptoms, which gradually assume a chronic character, with acute exacerbations. In any one of these exacerbations the patient may die, or the symptoms may again subside. After weeks and even months of illness death may result, or recovery, complete or incomplete, may occur. In some instances there remain more or less complete and permanent disabilities of the eyes or ears, sensory and motor paralyses, or psychical disturbances. (2) Cases (next in frequency) which throughout their course are of an acute character, lasting from one to four weeks and terminating either in death or in recovery, which as a rule is absolute. (3) Fulminating cases, lasting from a few hours to three or four days, which are characterized by most foudroyant symptoms and terminate fatally. The abortive type of cases, lasting for a few hours or a day or two, with recovery, he has not seen, probably because he does not consider the diagnosis confirmed until the diplococcus has been found in the fluid obtained by lumbar puncture. The disease in this epidemic has had no prodromal stage. The acute symptoms have been those of a febrile disease involving the brain and spinal cord: Severe headache, stiffness or even rigidity at the back of the neck, and in most cases in adults, in all in children, vomiting. Pain in the muscles of the back and extremities are also complained of by most of the cases, and hyperesthesia is observed in all except the foudroyant ones. There is generally much trembling, as though from chilliness, and the patient has a tendency to fall into stupor. Ordinarily the temperature is high, but in exceptional instances low. The curve, which has nothing distinctive, is characterized by sudden and extensive variations. The patient early assumes a peculiar position, which is maintained even during delirium and semi-coma. He lies on either side, with the thighs flexed and the abductors spasmodically contracted. The legs are flexed upon the thighs, and the arms, flexed at the elbows, are brought over the front of the chest, while the head is extended backward.

**Symptoms.**—The symptoms due to inflammation of the brain and medulla and their meninges, and to neuritis of the cranial nerves, are headache, slow pulse, hydrocephalic cry, tache cerebrale, vertigo, convulsions, delirium, coma, coma vigil, Cheyne-Stokes respiration, photophobia, abnormalities of the pupil, ptosis, strabismus, diminished or absent conjunctival reflex, deafness, facial paralysis, hemiplegia, monoplegia, paraplegia, etc. Macewen's symptom is present in advanced cases of coma or semi-coma due to distention of the ventricles of the brain; percussion of the skull one or two inches behind the junction of the frontal, parietal and temporal bones giving rise to a clearer note than is obtained over other parts of the cranium. The joints, particularly the knees, may be affected, the trouble varying from simple pain on motion to all the manifestations present in acute articular rheumatism. That these joint lesions are not toxic but trophic in character was shown by one of Dr. Berg's cases, a child eight months old, in whom a well-marked spinal arthropathy, or Charcot's joint, developed. There soon resulted subluxation of the joint surfaces upon each other, with total destruction of the ends of the bones. This case, so far as he knew, was unique. Absence of patellar reflex is due to increased intraspinal pressure, and affords an indication for a repetition of lumbar puncture. The increased leucocyte count in the blood (18,000 to 30,000) is a valuable symptom, which serves to differentiate these cases from tuberculous meningitis and typhoid fever. The diagnosis may be made absolutely by the finding, by culture, of the meningococcus in cerebrospinal fluid withdrawn by means of lumbar puncture. Kernig's symptom is the most reliable physical sign of the disease which we have, and he has never seen it absent in the present epidemic. It is obtained by placing the patient upon the back, flexing the thigh at right angles with the abdomen, and then extending the leg upon the thigh thus flexed. If Kernig's symptom be present, the complete extension of the leg upon the thigh cannot be accomplished. The patient will cry out, even when semi-comatose, long before the leg is brought to a line with the thigh, and the spasmodic muscular resistance cannot be overcome even by forcible efforts. As the Kernig diminishes, the prognosis improves. This symptom, it should be stated, is not limited to cerebrospinal fever, but is present in other forms of meningitis also. It is generally unequal on the two sides, and sometimes is only unilateral. Very little diagnostic importance should be attached to the Babinski reflex. It is true that in some cases of meningitis the other toes are flexed and the great toe is extended, when the plantar surface of the foot is tickled; but this symptom occurs in some healthy children and in children suffering from other diseases, while it is by no means constant in cerebrospinal meningitis.

**Treatment.**—Our therapeutic resources in this disease have not kept pace with the advance of our knowledge of symptomatology and pathology. Owing to our incomplete knowledge concerning the source of the contagion and the methods by which it is transmitted, even the prophylactic treatment is uncertain. It has been shown, however, that the meningococcus is one of the most resistant of organisms, retaining its life for a long time; so that as a dust it can readily be carried in the air, and in this way produce infection. Therefore, cleanliness in the sick-room, the careful removal of the discharges from the patient's nose and eyes by cloths or gauze which can be destroyed, the separate boiling of towels, clothing and bed-clothes, and the careful and frequent washing of the hands of attendants and visitors should be employed as safeguards to prevent the immediate carrying of the contagion from the sick to

the well or the transmission of an individual contagion through the air. So far as the active therapy is concerned, there is little hope of the production of an anti-meningococcic serum, since it has been found very difficult to produce immunity with cultures of this organism even in the smallest animals. In the Lisbon epidemic Bettencourt and Franca treated their cases by injections of lysol into the spinal canal, with a death rate of only 40 to 45 per cent.; but in Spain the mortality should naturally be smaller than in colder and moister climates. Dr. Berg's usual method of treatment consists of lumbar puncture, repeated whenever, after a period of improvement, the temperature again rises and symptoms of increased intracranial and intraspinal tension occur. If the cerebrospinal fluid flows from the canula in a continuous stream under tension, the withdrawal of 15 to 30 cc. will do much good. Internally he gives sodium iodide in considerable doses: 5 to 10 grains every three hours to a child over a year old, and 15 to 30 grains every three hours to adults. In adults and older children mercurial ointment is rubbed into the back of the neck and spine, and in infants oleate of mercury into the anterior fontanelle. With these methods, together with the treatment of symptomatic indication, 40 per cent. of recoveries may be expected. Ice-bags should be applied to the head, neck, and spine, and if the temperature rises above 103° F. a warm bath is used for five minutes at 80° and five minutes more at 90°. Care should be taken to guard against bed-sores and cleanliness of the conjunctiva and nose will tend to prevent panophthalmitis and deeper infection through the nasal cavities. Plenty of fresh air and sunlight are essential, and if the eyes are affected they should be protected by means of a screen or eye-shade, but, as is the usual custom, by darkening the room.

**Abortive Cases.**—Dr. Andrew von Grimm said the warm weather has a certain beneficial influence in epidemics of cerebrospinal meningitis, because the hygienic surroundings of the tenement-house population is better then. The period of incubation has been determined as between three and seven days. The infection takes place not only through the nose and mouth, but also the conjunctiva. He has had five abortive cases; in all of them a positive diagnosis was made by the bacteriological finding. In the treatment, sodium salicylate particularly had seemed to be of service. He had never observed any benefit from the use of mercurial ointment or Credé's ointment. In three cases he had tried the plan of producing an abscess by injecting about 15 cc. of oil of turpentine. If there was any disease in which an expectant treatment was justifiable it was certainly this.

**The Diplococcus Found in the Blood.**—Dr. Henry P. Loomis said he had seen thirty-five cases of the disease at the New York Hospital. In all of them the specific organism was present in the fluid derived from lumbar puncture, and it was interesting to note that in four instances it was demonstrated in the blood by competent bacteriologists. The mortality was very high: 66 per cent. in children and 61 per cent. in adults. The treatment was very disappointing. While lysol injections did no harm, he had not seen any results from it, and there appeared to be nothing in this method which offered any ground for hope. In one case, hopeless at the time, argyrol was injected. The patient died the next day, and at the autopsy evidences of pigmentation all over the brain were found, showing that the drug had circulated freely in the cerebrospinal fluid. He thought the abscess treatment mentioned by Dr. von Grimm might perhaps be attended with good results in some cases.

**The Nursing One of the Most Important Points in the Treatment.**—Dr. Wm. M. Leszynsky said it had been contended by many that when lysol was employed it never got beyond the site of the injection. He was therefore very glad to hear of the last case mentioned by Dr. Loomis, as it showed conclusively that substances thus injected do reach the various parts of the cerebrospinal tract. In the case of one child he had injected a one per cent. solution of lysol, and it was the only instance of complete recovery among the cases which he had at the time. From this one case, however, he would not draw any conclusion as to the benefit of this agent in general. It seemed to him that one of the most important things was the nursing, and in hospital practice it was very difficult to secure adequate attention to this. Even the chronic cases required the same care as typhoid fever patients. Kernig's symptom was found in all the cases; it is merely a confirmatory sign. One thing he could not understand, the attitude of some toward lumbar puncture; they contended that it was of no benefit. The procedure, when properly performed, is entirely harmless, and it is certainly of great diagnostic value at least. In hospital practice he thought it should be done in every case. He had not seen a petechial eruption in any instance, nor had he met with a single case of the fulminating type. In one case, however, the diplococcus was found after death in a patient who had suffered from intermittent trismus, but had no opisthotonus or rigidity of the neck.

Dr. Van Giesou read a paper on Infant Feeding.

**Cow's Milk for Infant Feeding.**—Dr. Augustus Caillé read a paper on this subject. In our attempts at the modification of cow's milk we are guided, he said, by the following fundamental considerations: (1) Reduce the proportion of proteids by dilution. (2) Increase the quantity of fat, originally sufficient but reduced by the necessary dilution. (3) Increase the sugar and salt, likewise made sufficient in amount by the dilution. (4) Sterilize or pasteurize in warm weather and for special cases. Milk food ordered by prescription according to the percentage method and supplied by the laboratory has given him very excellent results, but the same gratifying results he has obtained from home modification by simple dilutions of top milk. For various reasons the modifications of cow's milk, whether made in the household or in the laboratory, will not give uniformly good results, no matter how accurate we may be in our manipulation of percentages. We cannot convert cow's milk into mother's milk, however scientific we are; we are obliged to use cow's milk as nature furnishes it to us. With proper hygienic management, however, clean cow's milk, properly diluted or modified, will suit the vast majority of bottle-fed infants, provided they are not over-fed. The following simple method of home modification has been practiced by Dr. Caillé for the past twenty years: If a quart bottle of average good milk stands for four hours the upper half of the milk will contain about twice as much fat as the milk before standing. This point of so-called top milk is decanted and forms the basis of bottle food for home modification. By diluting this top milk in various proportions we obtain a food of various strengths as regards fat and proteids. The deficiency of salt and sugar is readily made up by the addition of these substances, and a food is thus prepared which will vary in composition according to the requirements of the child to be fed. Schedules were given for the feeding of infants of different ages.

In a difficult feeding case cow's milk should be discontinued for a short time, and cereal decoction and white of egg substituted. In resuming cow's milk we begin with a low strength, and gradually work up to

full strength milk, care being taken to avoid overfeeding. Digestion is best stimulated by carrying children out of doors, and not by drugging. An idiosyncrasy for cow's milk in proper dilution should not be suspected until after the child has had proper hygienic management. Infants and children who are kept indoors in cool and cold weather, and compelled to breathe the air of overheated and stuffy living apartments, will not digest well, no matter what they feed on. Idiosyncrasy for cow's milk is managed by selecting some substitute food, if possible the breast of a wet-nurse. In some cases whey with cream and cereal decoction will answer.

**A Simple Plan of Home Modification.**—Dr. H. D. Chapin thought the biological question quite as important, if not more important, than the chemical. In the plan which Dr. Chapin has adopted a constant ratio between the fats and proteids is maintained. In a bottle of milk which has been allowed to stand for six hours in a cool place we find three layers. In the first (of 9 ounces) the ratio is 3:1, in the second (of 16 ounces), 2:1, and in the third (of 20 ounces), 1½:1. In order to get a combination of the three layers a dipper is employed which holds just one ounce. Unless the method directed for home modification of milk is simple it will not be carried out. By watching the stools such alterations can be made as may be indicated. His experiments did not agree with those of White, for he found that a dextrinized gruel makes a better diluent than the plain cereal. We know that young infants can digest a small amount of starch, but it is not beneficial for them to do so.

**The Work of the Chemist Not Sufficiently Appreciated.**—Dr. E. H. Bartley said that as long as there were babies this subject would give us difficulty. He thought it often the case that the chemist was not given his just due. Such a discussion as this was brought about by the fact that the chemist in the laboratory had demonstrated that the caseins are different, and has shown how to get rid of the violent effects of the paracasein or pseudonuclein. If we are to make progress the careful chemical study of cow's milk is requisite. No chemist ever intends the method he recommends to be the only one. It is recognized that idiosyncrasies exist which will prevent any one kind of food from being invariably satisfactory.

Dr. Charles G. Kerley said it was universally recognized that cow's milk must be used as a basis in substitute feeding. While no one plan of preparing it would suit all babies, he thought we could arrive at one which would be satisfactory for the majority. He would like to say a word in favor of the laboratory. Whenever it was possible he always ordered laboratory modified milk, and this was his practice among the better class of his patients. In a second class of cases he used split milks. In a third class of cases, infants in institutions, the digestive condition had to be taken into careful consideration. In children with digestive weakness careful attention should be paid to the condition of the stomach, and not infrequently the greatest possible benefit could be derived from daily washing out this organ. Fresh air was essential.

**The Essentials of Successful Artificial Feeding.**—Dr. Theron W. Kilmer said that among the higher classes of women the nursing of infants at the breast was much less common than among their humbler sisters. The reasons for this he thought were (1) alcoholism, and (2) the strained and rapid mode of life. The successful practitioner is the physician who knows how to feed babies successfully. To secure success he must pay special attention to three things: (1) The milk used, (2) the baby's stomach, and (3) the nursing bottle. As to nursing bottles, it is often assumed that

they are kept clean, when as a fact they certainly are not, and too much stress could not be laid upon the importance of this point.

#### ASSOCIATED PHYSICIANS OF LONG ISLAND.

*Nineteenth Regular Tri-yearly Meeting, held June 18, 1904, at Central Islip, Long Island.*

The President, James P. Warbasse, M.D., in the Chair.

**The Care of the Infant.**—Dr. Henry P. de Forest emphasized the importance of being fully prepared for the various accidents that might await the new-born infant. The following things should be in readiness: A bathtub partly filled with hot water (the household bathtub, if near, will suffice); two pairs of artery forceps, a curved needle with heavy silk, a tenaculum for baby's tongue, a gauze pad for insufflation. The mouth should be cleansed as soon as the head is over the perineum; this may prevent asphyxia from meconium, mucus or regurgitated blood.

**Cord Around the Neck.**—Formerly the current practice has been to exert every effort to disengage the cord, as soon as its pressure is seen or felt around the neck. The rule should rather be to remove it if this can be done quickly and easily. If the least difficulty is experienced, proceed at once to complete delivery, for children have been lost owing to delay in trying to remove the cord. Occasionally it is easy to slip the cord over the shoulders. If the cord is too short, in this case interfering with delivery, there is the danger of loosening of the placenta, with internal hemorrhage. By then clamping the cord with two artery clamps the cord may be cut between them.

**Asphyxia.**—The two most important points in the treatment of this condition are to clear the air-passages of mucus and to stimulate the child with heat and artificial respiration. The former may be accomplished by wiping the mouth and then resorting to insufflation of the mouth and nose. Artificial respiration may be performed while the child is in the bath of hot water, an attendant applying cold water to the chest and spine, and may be aided by rhythmic traction on the tongue. The alternation of hot and cold bath is not as good as the hot bath and artificial respiration. If not relieved by this, the child cannot be saved at all.

**Atelectasis.**—This may result from the occlusion of the bronchial tubes with mucus. It should not be confounded with bronchopneumonia resulting from the inhalation of mucus, milk or blood. Cyanosis is a more or less prominent but a later symptom. The treatment is heat and food.

**Cephalhematoma.**—If small, let child lie on side of head opposite to the swelling. If large, the head should be wrapped in a bonnet well padded with cotton. A favorable prognosis should be given, the tumor disappearing in three or four weeks. Absent treatment is the best. Hematoma of the sternocleidomastoid muscle may result from excessive traction on the head. Facial paralysis may interfere with feeding, in which case the child should be fed with the spoon or bottle. In the care of the eyes, silver nitrate has been found to be preferable to protargol. The supposed inability of nurse is frequently due to tongue-tie. The nurse should be instructed how to "blow baby's nose." As a dressing for cord, equal parts of zinc oxide and salicylic acid are efficient. It is preferable to omit the bath until the cord has fallen off, owing to danger of infection of the latter. Some children are stimulated by the bath and some are depressed; if the latter, the bath should be hotter. For tender nipples use a shield and recommend less frequent nursing. The application of comp. tinct. benzoin with a subsequent dressing of boiled sweet oil is efficient.

The discussion of Dr. de Forest's paper was opened by Dr. Harrigan, who urged the necessity of keeping the possibility of tetanus infection in mind, a condition which occurred twice in the speaker's practice. He also alluded to the importance of changing the child's position frequently, particularly at the breast, and cited instances of deformity resulting from incorrect posture having been mistaken for rickets.

Dr. Alfred Bell took issue with Dr. de Forest over the statement of the latter that if the infant's mouth is cleansed with boric acid before and after nursing it will never get sprue or stomatitis. He referred to instances in which these conditions occurred in spite of the most scrupulous care in the toilet of the infant's mouth. The care of the foreskin in the male infant is a very important point; all that is necessary is gentle separation with a small retractor. The speaker also alluded to the general apathy of the profession with regard to certified milk, in which only 30,000 bacteria per c.c. are allowed. The milk is fully worth twice as much as the price, 12 cents per quart, that is charged for it.

Dr. Kerr spoke of two points that make for the welfare of the child during the dawn of its life. It is sometimes heard that the child rebels against its natural food. This condition does not exist. The fault is excessive handling of the child, resulting in pressure over the stomach and bowel. The child should be rolled gently on the lap of the nurse in being dressed. The second point is that the ordinary pillow, becoming saturated with perspiration and milk which the infant occasionally regurgitates, becomes a good culture-medium for bacteria. In lieu of the ordinary pillow, a jute pillow should be used; the jute should be changed every day, as well as the slip. The expense of the jute is so slight that the very poor can afford it.

Dr. Chase said that it is undesirable to bathe the weakly child every day. A sponge bath with borax water is fully as efficient as the complete immersion.

**Causes of Death Among Aboriginal Peoples.**—Dr. F. C. Cook, the well-known Arctic and Antarctic explorer, read an interesting paper on the above topic. It was contrary to the author's experience that alcoholism is the main cause of the extinction of the natives of this continent. One of the most potent causes that brings destruction to these people is the introduction of the various children's diseases by the white explorers and settlers, the adult, no less than the infant, population falling a ready prey to measles, scarlet fever and the like, which diseases break out with a virulence far greater than is seen among civilized people. The author explained this fact by suggesting that civilized races among whom the various infectious diseases raged with virulence in remote centuries, have inherited a passive immunity, while the savage, to whom these diseases are new, is not endowed with this immunity. Another disease which has proved destructive to the red man is tuberculosis. The causes of this increased susceptibility to consumption are found in the alteration of the mode of life of the Indians, the aggregations in villages, with crowding in unsanitary houses, with, in general, a tendency to degeneration rather than to uplifting. The substantial log house of the missionary settlement, with the probability of microbic multiplication from filth and sputum, is but a poor substitute for the wigwam in the native hunting ground. The author alluded to a virulent and fatal epidemic of parotitis among the natives of Alaska last year. To the Indian no blow is so hard as an acute infectious disease, to which he has not yet adapted himself. In 1896, an epidemic of measles occurred among the natives of Greenland with a mortality of 40 per cent.

Dr. Jas. P. Warbasse commented on that phase of

the subject which deals with the inherited immunities of civilized races, and suggested as an additional example of the latter the fact that the temperate nations of to-day passed through an era of intemperance during the early days of their history, as the result of which experience they have acquired a partial passive immunity against alcoholism.

**Intestinal Antiseptics with Special Reference to Benzoyl-Acetyl Peroxide (Acetozone).**—Dr. William H. Ross, of Brentwood, gave the results of his experience with this new intestinal antiseptic, particularly in typhoid fever cases, during the past year. It is an ancient fallacy that typhoid should be allowed to run its course. Discovered by Novy and Freer, of Ann Arbor, acetozone is a member of the large group of peroxides, possessing a greater germicidal power and a greater power of given-up oxygen. Biologically it is inert, but on taking up water it develops its power. It produces no constitutional effects and no poisonous effects, even in large quantities. It is germicidal in the strength of 1-33,000. The author used it in cases of purulent infection and gastro-intestinal fermentation and in thirteen cases of typhoid fever. In twenty-four hours 30 to 40 ounces of the saturated solution may be given, prepared by dissolving 15 grains in a quart of water, which is allowed to stand for two hours for hydrolysis to begin; it is then placed on ice. The taste may be veiled by means of lemon juice. The drug produces increased diuresis and a greater elimination of hippuric acid. The administration of salines enhance its value. The average amount of acetozone used in the author's typhoid cases was 210 grains. Its use was followed by an amelioration of symptoms. Two or three of the cases that were given up as hopeless by several physicians recovered after the use of this drug. The temperature fell in one or two days after its administration began, the stools improved, dryness of the tongue disappeared. In fact, in the previous three or four series of 13 cases, each of typhoid, treated by the speaker in former years, was the mortality less than 20 per cent. In the last series the mortality was nil, although some of the cases were considered hopeless. The author admitted that 13 cases are insufficient to establish the value of a drug, but believed that his own experience, taken in conjunction with that of numerous other experimenters, furnish a very encouraging outlook in the the therapeusis of typhoid fever. The time for the purely expectant treatment has been outlived.

Dr. Leon Louria, in discussing the above paper, expressed strong doubts as to the efficacy of intestinal antiseptics. Osler in the last edition of his text-book has admitted the failure of this plan of treatment in typhoid fever. Bouchard, in the early '80's, was the first to attribute to intestinal auto-intoxication a rôle in the production of morbid conditions. Rossbach introduced this theory in Germany. Miller and Brieger state that, although the facts of anti-intoxication are beyond doubt, the bacteria are not alone responsible. The ethereal sulphates have not been recognized as criteria of intestinal auto-intoxication by German chemists. The clinical picture of this supposed poisoning with bacterial toxins may include vertigo, tetany with dilation of the stomach, palpitation of the heart and urticaria, all of which are manifestations of conditions other than auto-intoxication. Moreover, these symptoms appear more frequently in women and children. Many of the symptoms of so-called intestinal auto-intoxication are of reflex origin. Many years ago Beaumont produced vertigo in the case of the Canadian trapper by touching the mucous membrane of the stomach. In this connection may be mentioned the large class of cases of idiosyncrasy to articles of food, e.g.,

strawberries. The physiologist Ludwig is quoted to have said to his physician: "The intestines have a brain of their own, which is different in different individuals." In regard to the new intestinal antiseptics, there is more to be feared from the commercial invasion than from the bacterial one. The good results obtained by the author of the paper, Dr. Louria attributed to the large amount of water (two qts.), which the patients were compelled to drink daily. In order to diminish the odor of the stools, large enemas are far more effective than intestinal antiseptics.

#### BRITISH MEDICAL ASSOCIATION.<sup>1</sup>

*Seventy-second Annual Meeting, held at Oxford, England, July 26, 27, 28 and 29, 1904.*

(Continued from Page 480.)

**Trypanosomiasis.**—An extended discussion on this subject was held. Dr. David Bruce, in opening the discussion, reverted to the conclusions arrived at at the last meeting of the Association. These were: (1) That the trypanosome found in the blood of natives on the West Coast of Africa was different from that found in cases of sleeping sickness, and that, therefore, human trypanosomiasis and sleeping sickness were distinct diseases. (2) At this time last year it was considered that the native is immune to trypanosomiasis, but that the European is not, this conclusion being arrived at on the analogy of the wild and domestic animals and nagana. (3) A year ago it was held that the prognosis of trypanosomiasis in the native was apparently good; in the European it was not favorable, but certainly not necessarily bad. (4) At that time it was stated that the treatment of this disease so far had proved absolutely unsuccessful. (5) Another conclusion that was arrived at this time last year was that the trypanosome of sleeping sickness had other hosts in addition to man, and that the humbler mammals had probably a great deal to do with the endemicity of trypanosomiasis.

He thought that a great advance in knowledge of this subject had been gained during the last year. Only one of the conclusions laid down at the last meeting of this Association can now be considered to be correct. Of the propositions laid down at this meeting last year, about 80 per cent. of them are now shown to be incorrect. He hoped that this year's conclusions would not show a high rate of mortality.

The first proposition he laid down was that the trypanosoma found in the blood of natives on the West Coast of Africa and in Uganda, and those found in cases of sleeping sickness, are identical. The work on this subject has been mainly done by Laveran and Mesnil, by Dr. Thomas, of the Liverpool School of Tropical Medicine, and by the Royal Society Commission in Uganda. All have come to the conclusion that, morphologically, these trypanosomes could not be said to differ, and that their behavior when injected into various animals, was also identical. From these considerations, therefore, it is thought that the *Trypanosoma gambiense* (Dutton), found in the blood of natives in West Africa and the trypanosome found in sleeping sickness, are identical.

**Trypanosoma Fever.**—2. The next proposition laid down was that the so-called "trypanosoma fever" is nothing but the first stage of sleeping sickness. The chief proof of this is that several of the natives found with trypanosomes in their blood a year ago in Uganda, who appeared perfectly healthy and were going about their ordinary work without showing any symptoms of sleeping sickness, have now succumbed, or show decided

<sup>1</sup> From advance sheets of the *British Medical Journal*, by courtesy of the editors.

symptoms of that disease. Captain Greig, of the Indian Medical Service, and Lieutenant Gray, Royal Army Medical Corps, who are still working at sleeping sickness in Uganda, have again examined as many of these natives as possible, and have found that many of them have died of sleeping sickness. Again, there were in Entebbe some five natives with trypanosomes in their blood who were kept under close observation. One of these natives is now suffering from unmistakable symptoms of sleeping sickness. From these facts, therefore, it is inferred that the so-called "trypanosoma fever" is nothing but the first stage of sleeping sickness.

**Europeans Not Immune.**—3. The next proposition is that neither the native nor the European is immune to this disease. If it is true that human trypanosomiasis and sleeping sickness are identical diseases, then this argument need not be pushed, as all are aware that very many thousands of natives have succumbed to sleeping sickness during the last few years. A short time ago it was also asserted that the European was immune to sleeping sickness; this, of course, like many another loose statement of the same kind, is now proved to be wrong, as several cases of this disease have occurred among Europeans.

**Mortality 100 Per Cent.**—4. The next proposition is that as regards prognosis, instead of being favorable, the mortality is 100 per cent. in both colored and uncolored races; at the same time it may be proved later that some of the natives—at least a certain percentage of them—who have trypanosomes in their blood, may kill off these trypanosomes before the disease has given rise to the pathological changes which constitute sleeping sickness. Greig and Gray in Uganda will have an opportunity of putting this to the proof, when they have examined all the natives examined for trypanosomes at this time last year. In his opinion, however, he doubted very much if man ever kills off the trypanosome when once it has gained entrance to the circulation. The incubation period may last for years, but he thought in all probability it will be found sooner or later that the man dies of the infection.

**Lower Animals Immune.**—5. The next proposition was that up to the present no evidence has been brought forward to show that any of the lower animals take any important part in the spread of human trypanosomiasis. This is a point upon which in all probability more light will be thrown within the next few years. There is no evidence, at present, that any of the lower animals take any part in the spread of the disease. It is quite true that many mammals besides man are capable of being infected artificially by this disease, and it is quite possible that this infection may take place sometimes under natural conditions, but when one thinks of the enormous number of infected natives in the sleeping sickness area, it is evident that there is no need to call in the aid of any of the lower animals to assist in the spread of the disease. Statements have been made that perhaps the trypanosomes live in the blood of fresh-water fish in the Victoria Nyanza. These fish are supposed to lie on the surface of the water, and some blood-sucking insect conveys the trypanosomes from the fish to the human subject. Others speculated in the same way as to the crocodile—which is very numerous in Lake Victoria—playing a part in the dissemination of this disease. These are most ridiculous speculations, and are not worth a moment's consideration.

**A Fly the Infecting Agent.**—6. The next proposition is that human trypanosomiasis is conveyed from the sick to the healthy by means of a biting fly—the *Glossina palpalis*. No evidence is as yet forthcoming from the West Coast of Africa in regard to the truth of this statement. He believes, on the West Coast, Dutton and

others have found it impossible, up to the present time, to prove that there is any connection with the spread of this disease and the *Glossina palpalis*, but he thought the evidence brought forward in Uganda is overwhelming in this respect. The distribution of this disease was found to be most peculiar. Shortly, the disease was confined to a narrow strip of land running along the shore of the lake and to the many islands which dot the northern part of the lake. It was thought that this peculiar distribution must depend upon some peculiar factor, and that factor was found in the *Glossina palpalis*. The distribution of this fly and the distribution of sleeping sickness was found to be identical; where none of these flies existed there was no sleeping sickness. The evidence, then, in Uganda, was so strong that he had no hesitation in asserting that sleeping sickness was conveyed, at least in Uganda, by that species of tsetse fly known as *Glossina palpalis*.

7. It has, however, been proved that several members of this genus are also able to convey the virus from the sick to the healthy, and this constitutes a danger that this disease may spread into the British East African and other tsetse fly zones. The proof of the truth of this has been brought forward by Dr. Wiggins, of Nairobi, in British East Africa, who experimented with the three species of tsetse flies found in that locality. *Glossina palpalis* is not only able to convey the trypanosome of sleeping sickness from the sick to the healthy, but it is also able to convey the trypanosome of nagana, or a disease found in part of Uganda, which must be very closely related to nagana. If the *Glossina palpalis*, then, can carry more than one species of trypanosome, it is reasonable to believe that the other species of this genus will also be able to carry the infection of sleeping sickness. This then constitutes a real danger that this disease may become imported into British East Africa and spread southward and northward along the tsetse fly belts of the coast and large river valleys.

8. Although there is proof that the various species of the genus *Glossina* can convey this trypanosome, there is no proof that other genera of biting flies, such as *Stomoxys* and *Tabanus* carry the infection under natural conditions. The arguments for the proof of this proposition are that Nuttall, of Cambridge, who experimented on the conveyance of the nagana trypanosome from sick to healthy animals by means of *Stomoxys calcitrans*, always had negative results. Greig and Gray have tried this experiment in Uganda, with *Stomoxys*, and have also failed. Experiments on a huge scale have been going on in South Africa for many years in regard to the spread of nagana or the tsetse fly disease; it is only where the tsetse fly, *Glossina morsitans*, or one of its allied species, *Glossina palpides*, is found that this disease occurs. Outside that area there may be many other species of biting flies, but the disease never spreads beyond the zone of the tsetse fly. When in Africa he lived for two years on the top of a hill in Zululand, within a few miles of the fly country. He had many animals affected by tsetse fly disease living on the top of this hill and surrounded by healthy animals, but in no case was the disease conveyed from one of these sick animals to a healthy one, although there were numerous species of biting flies, other than the tsetse fly, to be found on the top of the hill. It has been said by Rogers that *Tabanus* can carry the trypanosome of surra; this may be true, but he must say that he had not been quite convinced that this experiment was carried out under the best conditions. It seems evident, if one places two animals beside each other, one affected with surra and the other healthy, if one proceeded to shave the skin of both these animals, thereby causing a great deal of excoriation of epidermis and the infliction of

small wounds; if one then takes a cage containing *Tabanidae*, and allows them to bite the affected animal, and while so biting to suddenly have the cage transferred to the healthy one, is, to his mind, not a fair experiment; it stands to reason that any kind of biting fly would under these circumstances convey the infection to the small wounds and excoriated places which have been caused by the shaving.

**Direct Infection.**—9. There is no proof that *Trypanosoma gambiense* passes through any metamorphosis in *Glossina palpalis*, but that the transference of the parasites by this fly from one animal to another is purely mechanical. It has been said that the trypanosome undergoes a metamorphosis in the interior of the tsetse fly analogous to the metamorphosis which the malarial parasite passes through in the mosquito. The arguments in favor of the trypanosome being conveyed by the tsetse fly without any metamorphosis are: First, the fact that the fly is not able to retain, or does not retain, its infective quality for more than forty-eight hours. No one has been able to infect a healthy animal by means of the tsetse fly for a longer period than forty-eight hours, and his many attempts to convey the disease by means of the tsetse fly, three days after the fly had fed on trypanosoma blood, had always failed. If any metamorphosis analogous to that which the malarial parasite undergoes in the mosquito was undergone by the trypanosome in the tsetse fly, then it would be expected that the tsetse fly would not become infective until some time had elapsed from the last time of feeding; the mosquito in yellow fever does not become infected for some twelve days, and in the same way the mosquito in malaria takes some days before it becomes infected. After the work of Schaudinn on *Halteridium*, it would be rash to say that no metamorphosis or development takes place in the interior of the tsetse fly. In all probability some development does take place, but he asserted that this development will be found to be quite a different thing from the metamorphosis which has been prophesied, and which takes place in the case of the malarial parasite and the mosquito.

10. The present evidence goes to show that all the stages of the development of the *Trypanosoma gambiense* take place in the human host.

11. In regard to measures for the prevention of the spread of sleeping sickness: These should aim at preventing, as far as possible, the movement of natives from sleeping sickness areas into any part of the country where any species of tsetse fly is found. It was lately proposed to remove the Indian laborers from the British East African Railway and to replace them by native laborers from Uganda. One can easily imagine how dangerous such a course might be. Many of these Uganda natives might have the trypanosomes of sleeping sickness in their blood, and so convey that parasite into the tsetse fly district of British East Africa, and spread the disease to the natives of that part. Other measures would be the prevention, as far as possible, of the movement of healthy natives into sleeping sickness areas; the evacuation, if possible, of those areas; the destruction of the breeding places of the tsetse fly, and of the fly itself, whenever possible.

(To be Continued.)

**Surgical Treatment of Chronic Bright's from the Ophthalmic Standpoint.**—It has for some time been a recognized fact that patients, who suffer from chronic nephritis and show changes in the retina resulting from that disease, seldom live longer than two years. This ocular lesion, therefore, at once becomes a very important prognostic factor and it seems strange that sur-

geons contemplating the operation of decapsulation should so frequently fail to even look for this sign. G. F. SUKER (*N. Y. Med. Jour.*, June 4, 1904) has carefully examined all the clinical data obtainable and finds that only 16 cases of decapsulation have occurred upon patients, undoubtedly suffering from albuminuric retinitis. These changes in the retina are simply evidences of irreparable inflammatory changes occurring not only in the eye but also in the kidney and throughout the cardiovascular system. Of these 16 cases not one lived two years, and the majority lived less than six months. It would seem proper, therefore, to say that the presence of retinitis contraindicates the operation of decapsulation. Since this ocular complication occurs in at least 25 per cent. of all cases of chronic Bright's disease, it is a sign which should always be looked for before such an operation is advised.

## BOOK REVIEWS.

**SURGICAL DIFFERENTIALS.** By J. W. DRAPER MAURY, M.D., Rockefeller Institute Research; Fellow in the Laboratory of Experimental Surgery, Columbia University, New York. Illustrated. James T. Dougherty, New York.

THESE are three distinctive characteristics to this little book: Differential tables, unique illustrations and an up-to-date, terse text.

Differential diagnosis has always been a difficult subject for every one. A volume which presents a long series of differentials in tabular form must therefore be useful. When, in addition, the tables are thoroughly correlated with the rest of the book, and all is made to follow a logical scheme, it becomes doubly valuable, for recitation purposes.

A book written to fill the vacancy for which this one has been designed is a distinct step in advance, when it places into the hands of students graphic "line sketches," made by one of themselves and so simple that any one can reproduce them.

The text is as clear as the illustrations, and reflects the most recent surgical advances, some of which have not yet found their way into general surgeries. The author strives to render his pages of value, particularly to the student who is preparing to take the competitive examinations for the hospitals. To this end he has, in addition, appended a list of the examinations for 1902 and 1904, at all the important hospitals in and near New York.

The book is well designed and in every respect a credit both to its author and publisher.

**A TEXT-BOOK OF MECHANOTHERAPY. (Massage and Medical Gymnastics.)** By AXEL V. GRAFSTROM, B.S., M.D. Second Edition, revised and enlarged. W. B. Saunders & Company, Philadelphia, New York and London.

THIS popular little work appears in its second edition with two new chapters added, one on massage of the eye, ear, nose, and throat, and the other on pelvic massage. The aim of the author has been to make the work a rational text-book for the medical student, the trained nurse, and the medical gymnast, and also a reference work on the subject for the physician. The system practised by the Royal Gymnastic Institute in Stockholm, Sweden, has been principally followed, with such modifications as are recommended by other authorities. The book is simply, but quite completely illustrated. The increasing importance of this subject, makes this little work a valuable addition to the physician's armamentarium.